ISSN 0971-8834

RNI-JK-ENG-1994-2673

JK-PRACTITIONER

INTERNATIONAL JOURNAL OF CURRENT MEDICAL SCIENCE & PRACTICE

January-March 2021 Volume 26 Number (1) www.jkpractitioner.com

26th Year of Publication

CONTENTS

Original Articles

Case Report

Short communication

Special Section Covid-19

INDEXING AND ABSTRACTING:

THE JOURNAL IS INDEXED AND ABSTRACTED IN IndMED/EMBASE/EXCERPTA MEDICA, INDMED, SCOPUS, PUBMED (FOR MEDLINE) ULRICH'S PERIODICALS DIRECTORY USA, INDEX ACADEMICUS (IA), INDEX COPPERNICUS, EBSCO, GOOGLE SCHOLAR AND IS LISTED WORLD WIDE IN UNIVERSITY AND COLLEG DATABASES. Bibliographic details of the journal available in ICMR-NIC centre's IndMED database (http://indmed.nic.in)Full text of articles being made available in medIND database (http://medind.nic.in) (2002-2015 issues only) and at www.jkpractitioner.com (1994 till date)

ISSN 0971-8834 RNI-JK-ENG-1994-2673

Volume 26 Number 1
January-March 2021

Design & Layout

Shaheed-e-Azam Press & Hospitality Pvt. Ltd.
SCO 3-4, Chowk Gurudwara Dukhniwaran Sahib,
Sirhind Road, Patiala-147001 (Punjab) India
0175-2357981, 98146-32807
email: shaheedeazampta@gmail.com

AIMS AND SCOPE

JK-Practitioner is a multidisciplinary Medical Journal published quarterly from Srinagar. Emphasis is placed on matters related to medicine in the country in particular, while articles from anywhere in the world are given due importance. Besides original articles and case reports the journal includes clinical reviews, guest articles and special articles on current topics in medicine and therapeutics

INFORMATION FOR SUBSCRIBERS:-

The **JK-PRACTITIONER**- Frequency Quarterly, one volume per year beginning in January. Other issues in April, July and October. **Correspondence regarding Editorial matters** should be addressed to the Chief Editor, G M Malik, PO BOX No.884,GPO, Srinagar, Kashmir (INDIA).**Annual Subscription rates:-Personal** Rs.1500/- I**nstitutional** Rs.2000/-, **Reduced** Rs.1200/-**Institutional rate** applies to Libraries, Schools, Hospitals, Clinics,Commercial and Private institutions and organisations. **Reduced rate** is avaliable for medical students only.**Rates outside India** US $100/-Gulf countries SR 100/- .All other countries US $100 or equivalent. **Concessional Rate for personal subscription** is available for a three year term at Rs.4000/-. Outside India US $ 200/- Gulf Countries SR 250/-Postal Charges within the country are Rs.100/-extra for a oneyear subscription. **Single current issue** Rs.600/-. **Prices are subject to change**. **Change of Address**:- The publisher must be notified 60 days in advance. **Volume Index** appears in October issue. **Indexing /Abstracting Services**:- The journal is currently abstracted and indexed in **EMBASE/Excerpta Medica** database, **IndMED, Pubmed (Medline)** and listed in **Ulrich's Periodicals Directory (USA), INSDOC (INDIA). And Index Academicus (IA) Scopus, SCI. Copyright information**:-When the manuscript is accepted for publication the authors agree to automatic transfer of the copyright to the publisher that the manuscript will not be published elsewhere inany language without the consent of the copyright holder. Old issues ofthe journal can be purchased at 15 % discount subject to availability. **INFORMATION FOR AUTHORS SUBMITTING MANUSCRIPTS:-**Manuscripts are to be submitted on a CD in **MS Word** with two hardcopies*.The articles undergo the standard review process. Please allow 9-12 weeks before information regarding acceptability, resubmission or rejection is conveyed to the authors. Once the articleis cleared for publication the authors will have to bear the publication cost.

WEBSITE : http:\\www. jkpractitioner.com

*To speed up the process of REVIEW, manuscripts could be submitted on **zaffar.abbas@gmail.com**

Original article

TREATMENT OUTCOME OF OBSTRUCTIVE SLEEP APNEA ON ATRIAL FIBRILLATION

Bashir A. Naikoo ; Nisar-ul-Hassan, Waseem Qureshi

Abstract

Background: Obstructive sleep apnea is usually associated with obesity with increasing incidence. Apart from many medical complications, cardiac arrhythmias are common, with non-valvular atrial fibrillation in particular. This study was conducted to confirm this finding in our population and to experience treatment outcome.

Methods: Prospective, random sample, hospital-based study. Subjects with obstructive sleep apnea, with atrial fibrillation were selected. Diagnosis of obstructive sleep apnea was made on the basis of clinical history, examination and sleep studies. Response to treatment with continuous positive airway pressure was meticulously observed.

Results: Participants included 21 individuals (18 males, 3 females) with mean age of 58.23+1.23 years. 3 subjects lost to follow up, finally 18 patients were studied and monitored. Atrial fibrillation was confirmed on electrocardiography in all. Among study subjects body weight, day time alertness and quality of life improved in all. Blood pressure normalized and atrial fibrillation abolished is statistically highly significant proportion.

Conclusion: Study demonstrated clear association of obstruction sleep apnea and atrial fibrillation that improved on treatment with continuous positive airway pressure.

JK-Practitioner2021;26(1):1-4

INTRODUCTION

Amongst various cardiac arrhythmias associated with sleep apnea syndrome, atrial fibrillation (AF) is the commonest observed in clinical practice. Both obstructive and central sleep apnea have been associated with AF in many previous studies, with 2-4 fold increased risk compared to those without these disorders[1]. Usually anti-arrhythmic drugs and catheter ablation with pulmonary vein isolation (PVI) constitute the mainstay of therapies to maintain normal sinus rhythm in patients with AF, however, some patients remain resistant to these therapeutic modalities and continue to have recurrent AF[2,3]. Obstructive Sleep Apnea (OSA) is one such risk factor associated with new onset and recurrent AF[4,5]. It is predicted that by 2050, more than 10 million Americans will have AF and possibly upto 16 million if the increase in incidence happens due to more diagnosis, as many cases remain undiagnosed[6]. It has been observed that AF is observed in central sleep apnea (CSA) as well, especially in patients with underlying heart failure and neuromuscular disease, although of the lesser magnitude compared to OSA[7]. It has been studied that physiologic changes of sleep disordered breathing including intermittent hypoxemia, hypercarbia and intrathoracic pressure fluctuations predispose to arrhythmias through electrical and structural remodeling, and alteration of sympathetic tone[8]. The use of continuous

Author Affiliations

Bashir A Naikoo MD, DM , Associate Professor ,Postgraduate Superspeciality , Department of Cardiology;
Nisar-ul-Hassan MD: Assistant Professor, Department of Medicine
Wassem Qureshi
MD,FRCP,Registrar Academics:

Government Medical College ,Srinagar ,Jammu & Kashmir ,India.

Correspondence:
Dr. Bashir Ahmad Naikoo
Associate Professor ,Department of cardiology,GMC ,Srinagar , J&K ,India.
Email:
Mobile: 94190-09348
bashirnaik123@yahoo.co.in

Indexed:
Scopus ,INMED , EBSCO , Google Scholar among others

Cite this Article as:
Naikoo BA, Nisar-ul-Hassan, Qureshi W:Treatment Outcome Of Obstructive Sleep Apnea On Atrial Fibrillation.JK Pract 2021;26(1):1-4

Full length article available at **jkpractitioner.com** one month after publication

Key words
Sleep apnea, cardiac arrhythmias, atrial fibrillation, continuous positive airway pressure.

positive airway pressure (cPAP) is associated with significant reduction in recurrence of AF in patients with OSA, irrespective of PV1.

The results supported by several previous studies and meta-analysis prompted us to study this observation among our patients with sleep disordered breathing, and to our knowledge, represents first study of its kind from Jammu and Kashmir State of India.

MATERIAL AND METHODS

This was a prospective, random sample study conducted at the Department of Medicine and associated Super-specialty hospital of the Government Medical College Srinagar – a tertiary health care institution of the state, from March 2018 to February 2020. The study included 21 subjects, 18 males and 3 females in the age group of 56 to 72 (mean + SD, 58.23 + 1.23) years. These subjects approached to us with cardiovascular disease like hypertension, type 2 diabetes mellitus with electrocardiographic evidence of atrial fibrillatioin and ventricular premature complexes. Diagnosis of OSA was made on basis of clinical history of witnessed snoring, day time somnolence, fatigue and headaches. Epworth sleepiness score was suggestive of possible obstructive sleep apnea in all. Examination with particular emphasis on weight, neck circumference and Mallampati Class III or IV was determined in all. Those patients having poor cooperation to undergo sleep evaluation and treatment of possible sleep apnea syndrome were excluded from the study. The subjects finally selected where interviewed in detail regarding sleep habits supported by witnessed observation of bed partners. They were subjected to sleep studies and reports where furnished by sleep specialist, board certified in the subject and meeting standard American Academy of Sleep medicine guidelines. All demographic characteristics were record in a proforma designed for the study. After confirming diagnosis of OSA, the subjects were meticulously followed up for future course with particular attention to cardiac arrhythmias. The apnea-hypopneas index (AHI) was calculated as the sum of all apnea plus hypopnea events per hour of sleep during estimated sleep time, and AHI > 5/hour was considered diagnostic of obstructive sleep apnea.

STATISTICALANALYSIS

The data regarding demographic characteristics, electrocardiography findings, sleep study parameters and treatment indicators after CPAP therapy were analyzed by experienced statistician, using statistical package for social sciences (SPSS Ver. 22). Chi-square and p values were analyzed and p value of < 0.05 was considered as statistically significant. Treatment outcome measures were analyzed and conclusions derived by the statistician.

Table 1: Demographic profile of Study Group (n=21).

Demographic Profile		p value
Males	18 (85.71%)	< 0.001
Females	3 (14.29%)	> 0.05
Age in years (mean±SD)	58.23±1.23	< 0.02
BMI (kg/m^2)	31.12±2.22	< 0.001
Smoking	14 (66.66%)	< 0.010
Mean blood pressure (mmHg)	98.8±1.67	< 0.04
Epworth Score > 10	21 (100%)	< 0.001
Atrial fibrillation	21 (100%)	< 0.001
Ventricular premature complexes	3 (14.28%)	> 0.05
AHI 5-14 / hour	6 (28.57%)	< 0.005
AHI 15-29 / hour	8 (38.09%)	< 0.001
AHI > 30 / hour	7 (33.33%)	< 0.003

RESULTS

Among a small sample of 21 patients, majority were males (85.71%) with mean age of 58.23+1.23 years (Table 1). 3 patients were lost to follow up. Hence the remaining exact study population included 16 males and 2 females only. Among the important demographic characters, hypertension was noted in 98.2% patients. Atrial fibrillation was found in all study subjects as confirmed on electrocardiography. Obstructive sleep apnea with AHI >5/hour was confirmed in all. Weight loss measured and dietary control habits were explained to all and CPAP was prescribed to all after proper titration by the board certified technologists. All subjects were meticulously followed for adherence to treatment and response.

When compared to baseline demographic characteristics, statistically highly significant improvement was observed particularly blood pressure, weight and resolution of improvement in alertness and quality of life as assessed by Epworth Sleepiness Scores (Table 2).

Table 2: Outcome of treatment of OSA with CPAP (n=18)

Characteristics	Treatment with CPAP		p value
	After 1 month	After 3 months	
Epworth Score > 10	8 (44.44%)	2 (11.11%)	< 0.001
Mean Weight (kg)	84.26±1.18	72.23±2.22	< 0.05
Blood pressure (mmHg)	140.3 + 1.22 90.0 ± 3.16	130.3 + 3.11 83.2 ± 1.11	< 0.005
AF	7 (38.88%)	2 (11.11%)	< 0.001
Ventricular premature complexes	1 (5.55%)	0 (0)	< 0.001

DISCUSSION

As per the latest published data, it has been observed that with growing obesity, the global burden of AF and OSA is increasing at an alarming rate. Non-valvular AF is the most common arrhythmia affecting nearly 3 million adult Americans[9]. Also it is predicted that by 2050, nearly 12-15 million adults in the US will have AF. Also, OSA, the most common form of sleep-disordered breathing is showing upward trend, making OSA and AF as global public health problems[10,11]. OSA is one risk factor that is associated with new onset-AF and also with its recurrence after catheter ablation[12]. While observing OSA in our clinical practice and high prevalence of AF in them and scientific background, we were prompted to confirm this finding in our population. Several mechanisms are proposed by which OSA increases the risk of AF. These include wide fluctuations in intrathoracic blood pressure during apnea episodes that leads to left atrial stretch through pressure and volume overload. Additionally there are intermittent periods of hypoxemia and hypercapnia that lead to atrial remodeling with regions of fibrosis with loss of atrial myocytes and areas of dissociation in conduction, as confirmed by electrophysiological studies. On the basis of published data from meta-analyses, patients with OSA can have 25% to 31% increased risk of AF recurrence after catheter ablation compared to those without sleep apnea[13-15]. Additional mechanisms of development of AF in OSA include autonomic nervous system activation, hypertension, left ventricular hypertrophy and diastolic dysfunction[16].

Besides weight reduction and surgical correction, CPAP is currently the mainstay of available therapy for adults with OSA. As supported by huge data from meta-analyses, CPAP use reduces or abolishes the frequency of respiratory events during sleep, decreases daytime sleepiness, and improves quality of life[17,18]. Although our study sample was very small, we observed tremendous improvement in overall quality of life after CPAP use. Lowering of blood pressure and alleviation of bradyarrhythmias are often known effects of CPAP use. The use of CPAP has been found associated with a significant reduction in AF recurrences across many published studies[19,20]. While we observed only a random sample of OSA patients with atrial fibrillation, CPAP use result in reduction of hypertension as well. For further clarification, we suggest large sample studies to be conducted in future.

REFERENCES

1. Chugh SS, Ramus H, Kumar N et al. Worldwide epidemiology of atrial fibrillation: a Global Burden of Disease 2010 Study. Circulation 2014; 25(129): 837-47.
2. Jais P, Cauchemez B, Macle L et al. Catheter ablation versus antiarrhythmic drugs for atrial fibrillation: the A4 study. Circulation 2008; 118: 2498-2505.
3. Wilber DJ, Pappone C, Neuzil P et al. Comparison of anti-arrhythmic drug therapy and radiofrequency catheter ablation in patients with paroxysmal atrial fibrillation: a randomized controlled trial. JAMA 2000; 303: 333-340.
4. Gami AS, Pressman G, Caples SM et al. Association of atrial fibrillation and obstructive sleep apnea. Circulation 2004; 110: 364-370.
5. Ng CY, Liu T, Shehata M et al. Meta-analysis of obstructive sleep apnea as predictor of atrial fibrillation after catheter ablation. Am J Cardiol 2011; 108: 47-51.
6. Miyasaka Y, Barnes E, Gersh BJ et al. Secular trends in incidence of atrial fibrillation in Olmsted county, Minnesota 1980 to 2000, and implications on the projections for future prevalence. Circulation 2006; 14(2): 119-125.
7. Sin DD, Fitzferald F, Parker J et al. Risk factors for central and obstructive sleep apnea in 450 men and women with congestive heart failure. Am J RespirCrit Care Med 1999; 160(4): 1101-1106.
8. Hany D, Michelle NG, Anthony BG et al. Atrial remodeling in obstructive sleep apnea: implications for atrial fibrillation. Heart Rhythm 2012; 9(3): 321-328.
9. Shantha G, Pelosu F, Morady F. Relationship between obstructive sleep apnea and AF. Arrhythmia and Electrophysiol Rev 2019; 108(3): 180-183.
10. Naccarelli GV, Varker H, Lin J, Schulman KL. Increasing prevalence of atrial fibrillation and fluller in the United States. Am J Cardiol 2009; 104: 1534-1452.
11. Punjabi NM. The epidemiology of adult obstructive sleep apnea. Proc Am ThoracSoc 2008; 5: 136-143.
12. Gani AS, Pressman G, Caples SM et al. Association of atrial fibrillation and obstructive sleep apnea. Circulation 2004; 110: 364-367.
13. Otto ME, Belohlavek M, Romero-CorrelA et al. Comparison of cardiac without obstructive sleep apnea.
14. Dimtri H, Ng M, Brooks AG et al. Atrial remodeling in obstructive sleep apnea:

implications for atrial fibrillation. Heart Rhythm 2012; 9: 321-328.
15. Gami AS, Hodge DO, Herges RM et al. Obstructive sleep apnea, obesity and risk of incident atrial fibrillation. J Am CollCardiol 2007; 49: 565-571.
16. Latina MJ, Mark Estes NA, Garlitski AC. The relationship between obstructive sleep apnea and atrial fibrillation: a complex interplay. Pulm Med Hindawi Pub Corp 2013: 1-11.
17. Gottlieh DJ, Punjabi NM, Mehra R et al. CPAP versus oxygen in obstructive sleep apnea. N Engl J Med 2014; 370: 2276-2285.
18. Patel SR, White DP, MalhotraA et al. Continuous positive airway pressure therapy for treating sleepiness in a diverse population with obstructive sleep apnea: results of a meta-analysis. Arch Intern Med 2003; 163: 565-571.
19. Shukla A, Aizer A, Holmes D et al. Effect of obstructive sleep apnea treatment on atrial fibrillation recurrence. J Am CollCardiol 2015; 1: 41-51.
20. Koehler U, Fus E, Grim W et al. Heart blocks in patients with obstructive sleep apnea: pathogenetic factors and effects of treatment. EurRespir J 1998; 11: 434-442.

Original article

PREVALENCE OF POSITIVE TROPONIN AND ECHOCARDIOGRAM IN PATIENTS WITH ACUTE ISCHEMIC STROKE FINDINGS AND THEIR ASSOCIATION WITH MORTALITY

Khalid Mohiuddin, Aidel Fayaz, P A Shah, Hamed Bashir

Abstract

Introduction:

Adverse cardiac events after stroke are associated with increased mortality. Current American Heart Association/American Stroke Association guidelines recommend evaluating cardiac biomarkers (preferably cardiac troponin [cTn]) in all patients presenting with acute ischemic stroke

Objectives:

Aim of current study was to analyze the prevalence of positive troponin levels and abnormal echocardiograph findings in patients admitted with acute ischemic stroke, and to analyse association of troponin levels with mortality rates in these patients.

Results:

Mortality rates were higher in patients with elevated troponin levels (23.3 % vs 8.4% in patients with trop > 14ng/l and trop <14nh/l respectively) with significant p value of 0.007. Non-fatal MI was higher in patients with elevated troponin levels (44.2 % vs 3.6% in patients with trop > 14ng/l and trop <14nh/l respectively). MACE rate was found in 13.9% patients with normal troponin levels and 39.5% patients with elevated troponin levels. During post discharge follow up, 11 6.6% patients who died from any cause had normal troponin levels as compared to 30.2% patients who had elevated troponin levels. The difference was found to be statistically significant ($p < 0.05$).

Conclusion:

Elevation of cTnT occurs in patients with acute ischemic stroke and can be regarded as a predictor of poor functional outcome and increased mortality

JK-Practitioner2021;26(1): 5-9

INTRODUCTION

Cardiovascular and cerebrovascular disease are two major causes of death and disability in the United States.[1,2] Since adverse cardiac events are associated with increased mortality after stroke, current American Heart Association/American Stroke Association guidelines recommend evaluating cardiac biomarkers (preferably cardiac troponin [cTn]) in all patients presenting with acute ischemic stroke.[3–5] Although cTn is highly specific for myocardial injury, it does not reveal the underlying mechanism of injury.[6] The majority of patients with acute ischemic stroke have neither typical symptoms nor electrocardiographic evidence of acute coronary ischemia, but between 5% and 34% of these patients have cTn levels above the diagnostic threshold, suggesting ongoing myocardial injury, when conventional assays are used; when high-sensitivity assays are used, this rate can be as high as 60%.[7,8]Scheitz JF et al (2012)[9] found that 14% of patients admitted with AIS had significant cTnT elevation.

Apart from raised troponin levels, significant number of patients with ischemic stroke have abnormal echocardiographic findings. Cardio embolic AIS per-se accounts for 20% of all AIS. Hypertroponinemia in AIS, as evidence of underlying demand ischemia, has been linked to cardiac dyskinesias detectable on echocardiography.Darki A et al (2013)[10] found that 17.5% patients with AIS had a positive troponin level. 67%

Author Affiliations

Khalid Mohiuddin, Associate Professor;

Hamed Bashir, Lecturer,

Department of Cardiology

Aidel Fayaz, Registrar,
PA Shah, Professor;
Department of Medicine

Government Medical College, Srinagar, J&K, India

Correspondence:
Dr.Hamed Bashir
Lecturer, Department of Medicine, GMC,Srinagar I&K ,India .
E-mail –
hamedkhan001@gmail.com
(M) 7780838944

Indexed:
Scopus ,INMED , EBSCO @ Google Scholar among others

Cite This Article as:
Mohiuddin K., Fayaz A, Shah PA, Bashir H., Prevalence Of Positive Troponin And Echocardiogram In Patients With Acute Ischemic Stroke Findings And Their Association With Mortality .JK Pract 2021;26(1): 5-9

Full length article available at **jkpractitioner.com** one month after publication

Keywords:
Acute ischemic stroke, troponin levels, Hs-cTnTof

patients with a positive troponin level had a new wall motion abnormality on echocardiogram that was suggestive of unstable atherosclerotic disease. Svatikova A et al (2011)[11] compared echocardiographic findings in ischemic stroke patients with and without OSA. Ischemic stroke subjects, regardless of their OSA status, had LV diastolic dysfunction. Dasti MA, et al (2016)[12] found that 70% of patients admiited with cva had abnormal echo finding. (Global Hypokinesia -28.5%, LVH - 25.7% and diasystolic dysfunction in 17.14%, were predominate).

Irrespective of the underlying mechanism, elevated cTn values are associated with worse clinical outcomes and a higher risk of mortality in patients with acute ischemic stroke. [8-11] PuvardaveV et al (2016)[13] concluded that raised cardiac Troponin I in acute ischemic stroke without clinical or ECG changes of MI predicts adverse cardiac outcome in the form of non-fatal MI. Su YC et al (2016)[14], atTzu chi University Hualien Taiwan, conducted a retrospective study, enrolling 871 patients with Acute Ischemic Stroke. They concluded that elevation of Tn1 during stroke is a strong independent predictor of both poor out come and in-hospital mortality.

Aim of current study was to analyze the prevalence of positive troponin levels and abnormal echocardiograph findings in patients admitted with acute ischemic stroke, and to analyse association of troponin levels with mortality rates in these patients.

Aims and objectives:

1. To analyze the prevalence of positive troponin and abnormal echocardiograph findings in patients with acute ischemic stroke, and
2. To analyze the association of elevated troponin levels with mortality in acute ischemic stroke.

Material and methods

The present prospective cohort study was conducted in the Postgraduate Department of Medicine, Government Medical College Srinagar. All consective patients > 20years of age admitted with acute ischemic stroke were enrolled in the study. Apart from detailed clinical history, relevant clinical examination was done in every patient. Routine hematological investigations like CBC, LFT, Electrolytes, VBG, was done. Imaging in the form of plain CT brain (16 slice Somatom Emotion) and/or MRI (3-Tesla Magnatom Siemen's) brain was performed in every patient. QuantitativeTrop T levels were done in all patients using Chemiluminescent Micro-particle Immunoassay (CMIA) test. Echocardiography was done on all patients using Zonare Medical System (Saint Jude) echocardiography machine. Relevant investigations were also done for determination of etiology of stroke whenever necessary.

Statistical methods:

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were expressed as Mean±SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar and pie diagrams. Chi-square test was employed for comparing 30-Day mortality with respect to age, gender, troponin levels and echocardiographic findings A P-value of less than 0.05 was considered statistically significant. All P-values were two tailed.

Results

A total of 209 patients were enrolled in current study. The mean age of study cohort was 52.3 years. Male dominated the study comprising of 67.5% of patients. Various clinical features were seen in our study patients. Majority of the patients had weakness 191 (91.4%) followed by altered sensorium and aphasia in 182 (87.1%), sensory disturbance in 168 (80.4%) patients, cranial nerve lesions in 167 (79.9%) patients. Seizures were seen in 152 (82.7%) patients and involuntary movements in 144 (68.9%) patients.

Patients were distributed as per troponin levels, <14ng/l troponin level was observed in 166 (79.4%) patients while as >14ng/l troponin level was found in 43 (20.6%) patients (Fig 1).

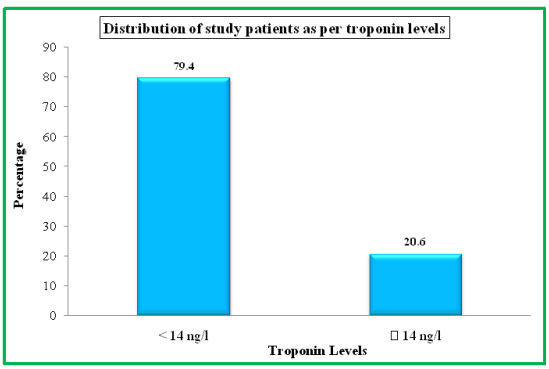


Fig 1: Distribution of study patients as per troponin elevation.

On echocardiography majority of patients, in our study, had global hypokinesia of left ventricle (30.6%). Other echocardiographic abnormalities noted were: left ventricular hypertrophy (24.4%), diastolic dysfunction (18.2%), mitral regurgitation(4.3%), cardiomyopathy (3.3%),

intracardiac thrombus(1.4%). 7.2% patients had multiple abnormal findings on echocardiography [table 1].

Table 1: Echocardiographic findings in study patients

Echocardiographic findings	No. of Patients	Percentage
Global hypokinesia	64	30.6
Left ventricular hypertrophy	51	24.4
Mitral regurgitation	9	4.3
Diastolic dysfunction	38	18.2
Systolic dysfunction	22	10.5
Intracardic thrombus	3	1.4
Cardiomyopathy	7	3.3
Multiple abnormalities	15	7.2
Total	209	100

When 30-day mortality was compared as per troponin levels, mortality rates was higher in patients with elevated troponin levels (23.3 % vs 8.4% in patients with trop > 14ng/l and trop <14nh/l respectively) with significant p value of 0.007(Table 2). Non-fatal MI was higher in patients with elevated troponin levels (44.2 % vs 3.6% in patients with trop > 14ng/l and trop <14nh/l respectively) (Table 3). MACE rate was found in 13.9% patients with normal troponin levels and 39.5% patients with elevated troponin levels. During post discharge follow up, 11 6.6% patients who died from any cause had normal troponin levels as compared to 30.2% patients who had elevated troponin levels. The difference was found to be statistically significant ($p < 0.05$).

Table 2: Showing 30 day mortality as per troponin levels in study patients

Troponin Levels	N	30 Day Mortality No.	%age	P-value
< 14 ng/l	166	14	8.4	0.007*
? 14 ng/l	43	10	23.3	
Total	209	24	11.5	

Table 3: Incidence of adverse outcomes during post discharge follow-up

Variable	Normal Troponin		Elevated Troponin		P-value
	No.	%age	No.	%age	
Nonfatal MI	6	3.6	19	44.2	<0.001*
MACE	23	13.9	17	39.5	<0.001*
Death from any cause	11	6.6	13	30.2	<0.001*

*Statistically Significant Difference (P-value<0.0

Discussion:

Many studies have shown that serum Hs-cTnT in many patients with acute stroke increases significantly. The current treatment guidelines for acute ischemic stroke patients recommend troponin evaluation in acute stage[3]. It is still controversial whether the increase of troponin after acute ischemic stroke (AIS) is related to the mortality and disability rate of stroke patients. Most studies suggest that there is a link between them, but a few studies that hold the opposite view. Some studies have shown that elevated troponin is related to poor functional prognosis, and high troponin levels is associated with increased mortality[9]. The potential pathophysiological mechanism of troponin elevation in the AIS is still unclear, leading to considerable uncertainty in the diagnosis and treatment for the clinician.Darki A et al (2013)[10] in their study found 24 of 137 patients (17.5%) had a positive troponin level. The prevalence of elevated troponin in acute ischemic stroke was 17.5% in a study conducted byKerr G et al (2009)[8]. AbdiS et al (2015)[15] in their study conducted on 114 patients found elevated Troponin T in 20 (17.6%).Akpinar O, et al (2017)[16] found 11 patients with troponin T levels above 0.014ng/ml. Similar results were seen in current study with significant trop elevation was seen in 20.6% of patients admitted with AIS.

On echocardiography majority of patients, in our study, had global hypokinesia of left ventricle (30.6%). Other echocardiographic abnormalities noted were: left ventricular hypertrophy (24.4%), diastolic dysfunction (18.2%), mitral regurgitation(4.3%), cardiomyopathy (3.3%), intracardiac thrombus(1.4%). 7.2% patients had multiple abnormal findings on echocardiography. Wrigley P et al (2017)[17] conducted a study in which the most frequent echocardiogram finding was cardiomyopathy with a low ejection fraction, which was found in 107 (7.8%).Yaghi S et al (2018)[18] investigated the yield of transthoracic echocardiography (TTE) in patients with ischemic stroke. The stroke subtypes were as follows: 315 (54.5%) cardioembolic, 150 (26.0%) large artery disease, 97 (16.8%) small vessel disease, and 16 (2.8%) other defined mechanism. Limited data from Ambrosiet al. also showed very high prevalence of diastolic dysfunction in stroke patients, although this finding is not commonly reported[19]. Diastolic dysfunction with preserved ejection fraction is common in elderly patients with coexisting cardiovascular conditionsand in stroke patientsalso suggests that the study group is representative of the general stroke population.

When 30-day mortality was compared as per

troponin levels, more patients with troponin levels >14ng/l (23.3%) than patients with troponin levels <14ng/l (8.4%) had 30-day mortality. In a study conducted by Kral M et al (2013)[20], the 30-day mortality rate was higher in patients with elevated cTnT.

Non-fatal MI was observed in 6 (3.6%) patients with normal troponin levels and 19 (44.2%) patients with elevated troponin levels during post-discharge follow up. MACE was found in 13.9% patients with normal troponin levels and 39.5% patients with elevated troponin levels. During post discharge follow up, 6.6% patients who died from any cause had normal troponin levels as compared to 13 (30.2%) patients who had elevated troponin levels. The difference was found to be statistically significant when adverse outcome was observed in patients who had normal or elevated troponin levels ($p<0.05$). Kim YD et al. (2017)[21] compared long term cerebrovascular outcomes between patients who underwent multi-detector coronary computed tomography (MDCT) and those who did not. In their study, during a follow up period of 38.0+24.8 months, 60 patients developed cardiovascular events including fatal myocardial infarction or sudden cardiac death in 29 (0.9%), non-fatal myocardial infarction in 27 (0.86%) and congestive heart failure in 4 (0.1%) patients.

Conclusion:

Cardiac findings and hypertropinemia are common in acute ischemic stroke patients even in the absence of concurrent myocardial infarction and hypertropinemia is independently associated with mortality. Elevation of cTnT occurs in patients with acute ischemic stroke and can be regarded as a predictor of poor functional outcome and increased mortality. Further studies are needed to determine whether cardiac evaluation in acute ischemic stroke patients might prevent the mortality.

Bibliography

1. Centers for Disease Control and Prevention. Leading causes of death. Available at: http://www.cdc.gov/nchs/fastats/leading-causes-of-death.htm. Accessed December 1, 2016.
2. Centers for Disease Control and Prevention. Stroke. Available at: https://www.cdc.gov/stroke/. Accessed December 1, 2016.
3. Jauch EC, Saver JL, Adams HP, Bruno A, Connors JJ, Demaerschalk BM et al. Guidelines for the early management of patients with acute ischemic stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2013;44:870–947.
4. Prosser J, MacGregor L, Lees KR, Diener HC, Hacke W, Davis S; VISTA Investigators. Predictors of early cardiac morbidity and mortality after ischemic stroke. Stroke. 2007;38:2295–2302.
5. Kumar S, Selim MH, Caplan LR. Medical complications after stroke. Lancet Neurol. 2010;9:105–118.
6. White HD. Pathobiology of troponin elevations: do elevations occur with myocardial ischemia as well as necrosis? J Am CollCardiol. 2011;57:2406–2408.
7. Scheitz JF, Nolte CH, Laufs U, Endres M. Application and interpretation of highsensitivity cardiac troponin assays in patients with acute ischemic stroke. Stroke. 2015;46:1132–1140.
8. Kerr G, Ray G, Wu O, Stott DJ, Langhorne P. Elevated troponin after stroke: a systematic review. Cerebrovasc Dis. 2009;28:220–226.
9. Scheitz JF, Endres M, Mochmann HC, Audebert HJ, Nolte CH. Frequency, determinants and outcome of elevated troponin in acute ischemic stroke patients. International Journal of Cardiology 2012; 157: 239–42.
10. Darki A, Schneck MJ, Agrawal A, Rupani A, Barron JT. Correlation of elevated troponin and echocardiography in acute ischemic stroke. J Stroke Cerebrovascular Dis. 2013; 22: 959-961.
11. Svatikova A, Jain R, Chervin RD, Hagan PG, Brown DL. Echocardiographic findings in ischemic stroke patients with obstructive sleep apnea. Sleep Medicine 2011; 12: 700–703.
12. DastiMA,HashmiSFA,Jaffery MH etal. Acute ischemic syndrome,electrocardiographic and echocardiographic findings in patients.(potential source of cardiac emboli). Professional Medical Journal 2016; 23(5): 535-38.
13. PurvardaveVetal. Med Pulse – International Medical Journal,ISSN,2348-2516,EISSN.2348-1897,volume 3 ,issue 2;December 2016 PP 1089-1092.
14. Su YC etal. Elevation of troponin]in acute ischemic stroke. PeerJ 2016; 4:e1866:
15. Abdi S et al. Elevated Troponin T after acute ischemic stroke:Association with severity and location of infarction. Iran J Neurol 2015;4(1): 35-40.
16. AkpinarOetal. Progonostic value of Troponin T in patients with acute ischemic syndrome in emergency department carried out at Adana state emergency hospital.ActaMedicaMeditarranea,2017;33:

757.
17. Wrigley P, Khoury J, Eckerle B, Alwell K, Moomaw CJ, Woo D, Flaherty ML et al. Prevalence of positive Troponin and echocardiogram findings and Association with mortality in acute ischemic syndrome. Stroke 2017; 48: 1226-32.
18. Yaghi S, Chang AD, Cutting S, Jayaraman M, McTaggart RA, Ricci BA. Troponin improves the yield of transthoracic echocardiography in ischemic stroke patients of determined stroke subtype. Stroke. 2018;49:2777-79.
19. Ambrosi P, Singeorzan S, Oddoze C, Arques S, Heim M. Correlation of NTproBNP with diastolic left ventricular function in elderly patients with ischemic stroke. Int J Cardiol 2010;140:126-8.
20. Kral M, Sanak D, Veverka T, Hutyra M, Vindis D, Kuncarova A. Troponin T in Acute Ischemic Stroke. Am J Cardiol 2013;112:117-121
21. Kim YD, Song D, Heo JH et al. Increased risk of cardiovascular events in stroke patients who had not undergone evaluation for coronary artery disease. Yonsei Med J 2017; 58(1): 114-22.

Original article

ROLE OF B-TYPE NATRIURETIC PEPTIDE IN DIFFERENTIATING CARDIAC DYSPNEA FROM THAT OF PULMONARY ORIGIN IN EMERGENCY CARE SETTING.

Nazir Ahmad Lone , Darminder Kumar

Abstract

Background:-

Heart failure burden has rapidly increased and likely to worsen due to current demographic and disease patterns..Good number of heart failure patients are being missed in emergency setting. To avoid this miss diagnosis in emergency department we tried to find the role of BNP levels as they are envisoned to fill this void..

Methods:-

A total of seventy-two patients with acute dyspnea presenting in the emergency department of a tertiary care hospital of Kashmir were studied after fulfilling the required protocol.4cc blood sample was taken in EDTA tube for estimation of plasma BNP level .The plasma BNP levels were analyzed by chemiluminescent sandwich immune assay having dynamic range 0-5000 pg/ ml , and cut point for heart failure of 100 pg/ml.

Results:-

In our study patients with final diagnosis of heart failure 44 patients had significantly higher level of BNP than patients without heart failure (399.6+- 289.2 pg/ml versus 84.9 +- 84.9 +- pg/ ml.).

Conclusion:-

BNP estimation is underutilized in emergency care setting while evaluating acute dyspnea in our hospitals. Plasma.BNP level estimation is a cost effective addition to diagnostic armamentarium of acute care physician.

JK-Practitioner2021;26(1):10-14

Introduction

Heart failure is a principal complication of virtually all forms of heart disease. Its burden has increased by many folds due to changing demographics, increasing burden of its risk factors like hypertension and diabetes and also better management of coronary artery disease leading to higher number of its survivors but with impaired heart function.The prevalence of heart failure increases dramatically with age, occurring in 1 to 2 % at 45 to 54 years of age andup to 10 % of individuals older than 75 years of age [1,2]. Heart failure is often difficult to diagnose in the emergency department or urgent care setting. The symptoms may be nonspecific and physical findings are not sensitive enough to use as basis for an accurate diagnosis [3,4]. Although echocardiography is considered the gold standard for the detection of left ventricular functions, it is expensive, is not always easily accessible and may not always reflect an acute condition[5]. Misdiagnosis of congestive heart failure can be life threatening because some of drugs used for congestive heart failure are hazardous to patients with other conditions such as chronic obstructive pulmonary disease that have same primary symptoms at presentation [6].

Natriuretic peptides have guided us as a diagnostic and prognostic tool for the management of heart failure and is established in various clinical trials.

Author Affiliations

Nazir Ahmad Lone, Associate Professor, Cardiology, GMC, Srinagar

Darminder Kumar
Associate Professor Cardiology , GMC , Jammu , J&K , India.

Correspondance:
Nazir Ahmad Lone, Associate Professor, Cardiology, GMC, Srinagar M: 941969734
e-mail: nazir69734@yahoo.com

Indexed:
Scopus ,INMED , EBSCO @ Google Scholar among others

Cite This Article as:
Lone NA , Kumar D. Role Of B-Type Natriuretic Peptide InDifferentiating Cardiac Dyspnea From That of Pulmonary Origin In Emergency Care Setting.JK Pract 2021;26(1):10-14

Full length article available at **jkpractitioner.com** one month after publication

Key word:
Dyspnea, Natriuretic Peptide

B-type natriuretic peptide (BNP) and its aminoterminal cleavage equivalent N-terminal (NT) -proBNP are released into the circulation from myocardium as and when diastolic wall stress increases as a result of increase in volume or pressure.From a physiological stand point, BNP has an important role in congestive heart failure as a counter regulating harmone to angiotensin-11, norepinephrine and endothelian, because it decreases synthesis of some of these neuroharmones and acts like a balanced vasodilator. Furthermore, as a result of its hemodynamic effects and direct tubular action BNP has natriuretic and diuretic effect and its plasma concentration correlates in a superior way with pulmonary capillary wedge pressure, left ventricular end-diastolic pressure and left ventricular ejection fraction in patients with systolic dysfunction [7,8]. This study sought to compare the utility of measurement of plasma brain natriuretic peptide (BNP) in the diagnosis of heart failure (HF) in patients with acute dyspnea presenting in the emergency department of a tertiary care hospital of Kashmir valley.

METHODS

The protocol was approved by the Ethical Committee of the hospital, and participants gave informed consent. Seventy two patients with dyspnea presenting to the emergency department of the hospital were enrolled. All those patients whose dyspnea was not clearly secondary to CHF (Trauma or Pericardial effusion) were excluded. Patients with acute coronary syndrome and renal failure were also excluded from the study. In all selected patients about 4 ml of blood was taken in an EDTA tube for measurement of plasma BNP level, at the same time other data of the patient were recorded including past history, present history, physical examination, reports of blood tests, interpretation of ECG and X-ray chest. Echocardiography was strongly encouraged in the emergency department or in the cardiology ward. Emergency physician or first contact cardiologist were asked to make an assessment of the patient on the basis of history, physical examination and baseline investigations, and give probable diagnosis while blinded to the results of BNP level. On echocardiography we examined both systolic and diastolic functions. To determine the patient's actual diagnosis as a cause of dyspnea, two cardiologists or team of cardiology department were asked to give independent assessment as a cause for dyspnea after reviewing all records including echocardiographic data, while they were also blinded to the result of BNP levels.

The blood sample was centrifuged and plasma was removed,aliquited and frozen at -70 degree C before analysis. Subsequently analyzed by chemiluminescent sandwich immuno assay; which has imprecision total % CV of 2.3 to 4.7, dynamic range 0-5000 pg / ml and cut point for heart failure of 100 pg/ml.

Statistical analysis

Group comparison of clinical variable were made with their value expressed as mean +- SD for parametric variable and in percentages for non-parametric variable.Group comparison of BNP values was made using t-test for independent samples.To evaluate the utility of BNP in the diagnosis of heart failure, we compared the sensitivity, specificity and accuracy of BNP measurement to individual findings,to a multivariate model of clinical findings and to clinical judgment.

RESULTS:-

The baseline characteristics of the included patients are summarized in Table 1. Their mean age was 58.6+ 10.2. 65.3% patients were males and 34.7 % were females. Their diagnosis as a cause of dyspnea by emergency physician was heart failure in 55 patients (76.4 %) versus no heart failure in 17 patients (23.6 %) Table 2.The final diagnosis as a cause of dyspnea ; Heart failure – 44 patients (61.1 %) versus no heart failure 28 patients (28.9 %)Table 3. The diagnostic accuracy of emergency physician was 84.7 % and miss diagnosis rate was 15.3% Table 4. 44 patients with diagnosis of heart failure , 12 patients had only systolic heart failure (Left ventricular ejection fraction less than 50%) with BNP levels 652+_ 345 pg/ ml which is significantly higher than other groups. In comparison patients with only diastolic heart failure 12 in number (echo documented diastolic dysfunction but normal ejection fraction) BNP levels were 250 +154 pg / ml. Whileas patients with systolic as well as diastolic heart failure 18 in number with BNP levels 352 +_ 224 pg /ml and others 2 in number (Patients with normal systolic and diastolic functionbut with flash pulmonary odema because of accelerated hypertension, atrial fibrillation with fast ventricular rate), were having BNP levels 195+12.02 pg / ml.oveall patients with heart failure were having significantly higher levels of plasma BNP levels as compared to patients with no heart failure.(Table 5)

Observations:

Table 1 Baseline Characteristics of 72 Studied Patients

Characteristic		N	%
Age	Means ±S (Range)	58.6±10.2(26,80)	
Gender	Male	47	65.3
	Female	25	34.7
Past History	Hypertension	54	75.0
	Diabetes Mellitus	20	27.8
	Myocardial Infarction	25	34.7
	COPD	44	61.1
	CCF	15	20.8

Table 2: Diagnosis as a cause of Dyspnea in the studied patients as diagnosed by Emergency Physician or 1st contact Cardiologist

Diagnosis	N	%
No Heart Failure(COPD with Acute Exacerbation)	17	23.6
Heart Failure	55	76.4

Table- 3: Final Diagnosis confirmed by two cardiologists or team of cardiology for the diagnosis as a cause of Dysponea in the studied patients.

Diagnosis		N	%
Heart Failure (n=44)	Heart Failure (Flash Pulmonary Oedema)	2	2.8
	Heart Failure	42	58.3
No Heart Failure (n=28)	COPD with Acute Exacerbation	2	33.3
	COPD with Acute Exacerbation, Pneumonia with Underlying LV Dysfunction	2	2.8
	HRCT proved Interstitial Lung Disease	2	2.8

Table- 4: Correlation of Emergency Physician or First Contac Cardiologists Diagnosis with Final Diagnosis.

Heart Failure (Final Diagnosis)	Emergency Physician or First Contact Cardiologist						Conclusion
	Heart Failure		No Heart Failure		Total		
	n	%	N	%	n	%	
Yes	44	80.0	0	0.0	44	61.1	
No	11	20.0	17	100.0	28	38.9	P=0.000(sig)
Total	55	76.4	17	23.6	72	100.0	

Table- 5: Plasma BNP level (pg/ml) in relation to final diagnosis

Characteristic	Heart failure	No heart Failure	Result	
	(n=44)	(n=28)	P value	conclusion
Plasma BNP Level (pg/ml)	399.6 ± 289.2	84.9 ± 42.4	0.000	sig

Discussion:-

Heart failure is often difficult to diagnose in the emergency department or in urgent care setting. The symptoms may be non-specific and physical findings are not sensitive enough to use as basis for an accurate diagnosis [3,4]. A helpful history is not obtainable in an acutely ill patient , and dyspnea, a key symptom of CHF may be nonspecific finding in elderly or obese patient in whom comorbidity with respiratory disease and physical deconditioning are common [7] . B-type natriuretic peptide has gained lot of popularity as a potential marker for heart failure and many studies have shown a good correlation between the extent of elevation of BNP and presence of heart failure [9-13]. The European Society of cardiology guidelines [14] have incorporated BNP as a marker for diagnosis and prognosis , while the American College of Cardiology/ American Heart Association guidelines recommend that in patients presenting with dyspnea ,measurement of natriuretic peptide biomarkers is useful to support a diagnosis or exclusion of Heart failure [15]. Present study was first of its kind that was conducted at our centre to check the utility of BNP levels in patients presenting with acute dyspnea in the emergency department of our institution.Diagnostic accuracy of emergency physician/ cardiologist was 84.7% and miss diagnosis rate was15.3 % in our enrolled patients.This finding is consistent with the findings of Damien Logeartetal [16] on comparative value of Doppler echocardiography and B- type natriuretic peptide assay in etiological diagnosis of acute dyspneaand also in studies conducted by Quyen Dao [17], Krishnaswamyetal [10] in 250 patients presenting in to urgent care setting.In our study plasma BNP levels of heart failure patients (n= 44)was 399.6 +289.2 pg/ ml whereas in case of no heart failure group (n= 28) was 84.9 + 42.2 pg/ ml a statistically significant difference. Our findings of high BNP levels in heart failure patients are consistent with earlier studies [16-21]. However in these studies the BNP levels were much higher as compared to BNP levels in our heart failure patients. This could be because of large sample size and different study population than those of our study. This variation of BNP levels could be because of inclusion of low risk heart failure patientsalso grade 11 to 111 diastolic dysfunction where as in these studies most of patients were having Grade 111 to 1V diastolic dysfunction.Univariate analysis of Plasma BNP level at different cut off level between 50 pg/ ml to 175 pg /ml, showed that at cut off level of 175 pg/ml BNP is most accurate variable out of all with accuracy of 87.5 %, sensitivity of 81.8 %, specificity of 96.4 %,positive predictive value of 77.1 %. At cut off level 80 pg/ml, BNP was very sensitive with sensitivity of 97.7 % and negative

predictive value of 92.3 %.Itiologic value of BNP was low in patients with levels between 80 pg/ml to 175 pg/ ml. This range needs confirmation from clinical judgment and adjunctive testing. The results of our study are almost consistent with earlier studies [11,17,22].Multiple variablelogistic regression analysis of various factors used for differentiating between patients with and without heart failure with significant p value, we found that the addition of BNP at cut off level of 175 pg/ml increased the combine explanatory power of the history, signs ,radiological studies and labfindings consistent withavailable literature 11, 12 16,17.

CONCLUSION:-

Rapid measurement of plasma BNP levels appears to be a sensitive and specific test for differentiating cardiac dyspnea from non cardiac causes I,e pulmonary causes in emergency setting. This is the most underutilized investigation in our clinical practice so it is high time to use this investigation for diagnosis as well as guiding our management of heart failure patients.

REFRENCES:-

1. Hokk, PinskyJL, Kannel WB et al. The epidemiology of heart failure. The Framingham study. J Am coll Cardiology 1993; 22:6 A.
2. American Heart Association Heart disease and stroke statistics 2004 uptake. Dallas American Heart Association 2003.
3. Stevenson JW, Perloff JK et al .The clinical reliability of physical signs for estimating hemodynamics in chronic heart failure. JAMA 1989; 261: 884- 888.
4. Remes J, Miettinent et al. Validity of clinical diagnosis of heart failure in primary health care. Eur Heart J 1991;12:315-321.
5. Devereause RB, Liebson PR, Horan MJ et al. Recommendation concerning use of echocardiography in hypertension and general population research. Hypertension 1987;9:97-104
6. Bales AC, Sorrentino MJ. Cause of congestive heart failure. Prompt diagnosis may effect prognosis. Post Grad Med 1997 ;101; 44-9,54-6.
7. Nakagawa O etal. Rapid transcriptional activation and early n-RNA turnover of BNP in cardiocyte hypertrophy. Evidence for BNP as an " Emergency " cardiac harmone against ventricular overload. J Clin Invest 1995 ;96; 1280-1287.
8. Chi-Ming Wei, MD, Denise M et al . Natriuretic peptide system in human heart failure . Circulation 1998 ;93;2059-2067.
9. Maisael AS et al. From the division of cardiology and department of Medicine, Veterans Affair Medical Centre and University of Calofornia, San Diego . Utility of B – type natriuretic as rapid, point of care test for screening patients undergoing echocardiography to determine left ventricular dysfunction. Case study 2000.
10. Padma Krishnaswamy et al ,MD, Emily Lubien et al . Utility of B- natriuretic peptide levels in identifying patients with lrft ventricular systolic or diastolic dysfunction. Am J Med 2001; 111; 274-279.
11. Alan S. Maisel MD, Padma Krishnaswamy MD et al. Rapid measurement of B- type natriuretic peptide in the emergency diagnosis of heart failure . N Eng l J Med 2002; 347; 161-7.
12. L. Katherine Morrison, Alex Harrison, Padma Krishnaswamy et al. Utility of a rapid B-natriuretic peptide assay in differentiating congestive heart failure from lung disease in patients presenting with dyspnea. J Am CollCordiol 2002;39;202-209.
13. Peter A McCullough MD, MPH, Richard M. Nuwak et al . B-type natriuretic peptide and clinical judgement in emergency diagnosis of heart failure. Circulation 2002;106; 416.
14. Ponikowski,P, Voors, A. A, Anker, s. D, Bueno, H, Cleland, j. G. F, Coats, A.J. S, etal. (2016). ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. Eur Heart J. 2016 jul 14, 37 (27) ,2129-2200.
15. Hunt SA, Abraham WT, Chin MH,etal. 2009 focused update incorporated into the ACC/AHA 2005 guidelines for the diagnosis and management of heart failure in adults: A report of the American College Of Cardiology Foundation/American Heart Association task force on practice guidelines developed in collaboration with the International Society For Heart And Lung Transplantation. Circulation 2009;119(14): e391-e479.

16…..Damien Logeart, Carole Sandubray, Pascale Beyne et al. Comparative value of Doppler echocardiography and B-type natriuretic

peptide assay in the emergency diagnosis of acute dyspnea. J Am CollCardiol 2002; 40; 1794-1800.

17….Quyen Dao, Padma Krishnaswamy et al .Utility of B- type natriuretic peptide in the diagnosis of congestive heart failure in an urgent care setting. J Am CollCardiol 2001; 37:379-385.

18…Mark Davis, Eric Espiner,GeoffRischards et al. Plasma natriuretic peptide in assessment of acute dyspnea. Lancet 1994;343:440-444.

19…Martin R Cowie, Allan D Struthers et al. Value of natriuretic peptide in assessment of patients with possible new heart failure in primary care. Lancet 1997;350:1347-51.

20….John G. Lainchbury, MD, Elizabeth Campbell, BSc et al. Brain natriuretic peptide and N-terminal brain natriuretic peptide in the diagnosis of heart ailure in patients with acute shortness of breath. J Am CollCardiol 2003;42:728-35.

21…Muller C .Scholer A. Lonle Killian K et al .Use of B type natriuretic peptide in the evaluation and management of acute dyspnea. N Engl J Med 2004; 350: 647-654.

22…KouloriS,Acherman RJ et al.Utility of BNP in differentiating CHF from lung disease in paediatric patients with respiratory distress. PaediatricCardiol 2004; 25: 341-346.

Original article

SUBACUTE THYROIDITIS, DIAGNOSTIC CRITERIA AND MANAGEMENT: AN INSTITUTIONAL STUDY.

Asef A Wani, Ayaz Rehman

Abstract

Introduction:
Subacute Thyroiditis (SAT) is an uncommon self limitting condition characterized by neck pain and / or neck tenderness. The disease is thought to have a viral origin, however the exact etiology of SAT is unknown.

Study design:
Prospective Study.

Material and Method: The study was carried out in the department of ENT & HNS at SKIMS –MCH Bemina J and K, India for a period of 1 ½ years. Diagonsis of sub acute thyroiditis was made on the basis of history of pain in the anterior neck, tenderness of thyroid gland, increased ESR and USG findings.

Results: 21 patients were included in the study. Out of these patients, 14 (66.7 %) patients were females and 7(33.3%) patients were males. Highest incidence of SAT was found in the age group of 41-50 (47.7%) years. Pain and tenderness along with raised ESR and CRP were observed in all patients at the time of presentation. Thyroid function test at the time of presentation revealed a suppressed TSH and elevation of FT4 and FT3 levels.

Conclusion: There is a need to increase the awareness among initial health care providers about this condition. It will help in early diagnosis ,thus reducing the morbidity and duration of illness besides avoiding unnecessary antibiotic prescription.

JK-Practitioner2021;26(1):15-18

Introduction

Subacute Thyroiditis (SAT), also known as subacute granulomatous thyroiditis, subacute painful thyroiditis, migratory thyroiditis, non–suppurative thyroiditis, granulomatous and De-quervains thyroiditis, is an uncommon self limitting condition and is the most common cause of painfull thyroidits, characterized by neck pain and / or neck tenderness with elevation of erythrocyte sedimentation rate (ESR) and C- reactive protein (CRP) and high serum thyroid hormone concentration . SAT was first described in 1904 by Fritz De-Quervain and its incidence is reported to be 3.6 -4.9 per 100,000 population and most commonly affects middle aged females[1].

The disease is thought to have a viral origin, however the exact etiology of SAT is unknown. Clinically, the condition is associated with severe pain that is usually localized to the anterior aspect of the neck that may radiate up to the jaw or ear.There is low grade fever,fatigue and mild thyrotoxic manifestations. The thyroid gland is tender to touch and small nodules are frequently found upon palpation. TSH levels are suppressed, ESR and CRP levels are elevated and there is poor or no thyroid uptake. Anti–thyroid peroxidase (anti-TPO) and Anti-thyroglobulin (anti-Tg) antibodies are usually negative [2]. Increased thyroid size, irregular thyroid margins and heterogeneous parenchyma are observed on

Author Affiliations

Asef A Wani,
Associate Professor,
Ayaz Rehman,
Lecturer
Department of ENT & HNS, SKIMS Medical College Srinagar ,J & K ,India

Correspondence
Dr. Asef A Wani
Associate Professor ENT
SKIMS Medical College Srinagar
email: dranjumasifwani@gmail.com

Indexed:
Scopus ,INMED , EBSCO @ Google Scholar among others

Cite This Article as:
S Wani AA , Rehman A Subacute Thyroiditis, Diagnostic Criteria And Management: An Institutional Study.JK Pract 2021;26(1):15-18

.

Full length article available at **jkpractitioner.com** one month after publication

Key words:
Subacute Thyroiditis (SAT), Tenderness, USG Neck, Diagnosis

ultrasonography[3].The diagnosis of SAT is made on clinical signs and symptoms, laboratory results and USG findings. Tissue diagnosis is rarely needed [1].

MATERIAL AND METHODS:

This Prospective study was carried out on patients attending the OPD of ENT & HNS department at SKIMS –MCH Bemina J&K, India for a period of 1½ years. Diagonsis of SAT was made on the basis of history of pain in the anterior neck, tenderness of thyroid gland, increased ESR and USG findings.

Inclusion criteria:

Patient with anterior neck pain and tenderness of thyroid gland at the time of presentation.

Exclusion criteria:

Patients with Goitre or any neoplastic swellings.

All the patients were subjected to detailed clinical examination, laboratory investigations and ultrasonography of neck at the time of presentation. All the patients were followed up weekly for four weeks to assess the improvement or otherwise of clinical symptoms. Relevant laboratory investigations were repeated at fourth week. Thyroid profile was again repeated in all patients at 24th week.

RESULTS:

21 patients were included in study, of which 14 (66.7 %) patients were females and 7 (33.3%) patients were males. Highest incidence was seen in the age group of 41-50 years (47.7%). [Table 1]

Table1: Age and Gender Distribution

Age group(yrs)	Male	Female	Total	%
21-30	1	1	2	9.5
31-40	1	4	5	23.8
41-50	3	7	10	47.7
51-60	1	2	3	14.3
61-70	1	-	1	4.7
Total	7	14	21	100

7 (33.33%) patients had history of upper respiratory tract infection in the proceeding 3-4 weeks before the onset of SAT.

All (100%) patients had pain at the time of presentation and only 3 (14.3%) patients had fever. 18 (85.7%) patients had temperature < 38°C and 3 (14.3%) patients had temperature between 38 .1°C and 39.4°C. Tenderness was present in all patients, involving left lobe in 12 (57.2%) patients, right lobe in 8 (38.1%)patients and entire gland in 1 (4.7%) patient. Palpable nodules were noted in 3 (14.3%) patients [right side 1 patient, left side 2 patients].[Table 2]

Average time from the onset of symptoms to the diagnosis was 2 weeks.15 (71.43%) patients were prescribed antibiotics by initial healthcare providers for an average period of 8-10 days.

Table 2: Clinical presentation of patients with SAT

Clinical presentation		No of Patients	%
Sign & symptoms	Pain	21	100
	Fever	3	14.3
Temperature	>38°C	3	14.3
	<38°C	18	85.7
Tenderness	Right lobe	8	38.1
	Left lobe	12	57.2
	Entire Gland	1	4.7
	Total	21	100
Palpable Nodule	Right side	1	4.7
	Left side	2	9.5
	Total	3	14.3

In all patients, primary ESR and CRP were elevated with mean ± SD of 56± 38.2mm/h and 54.2 ± 35.2mg /dl respectively .

Thyroid function test at the time of presentation revealed a suppressed TSH and elevated FT4 and FT3 levels with mean± SD of 0 .2 ± 0.4mIU/L, 2.8±1.4 ng/dl and 711±325 pg/dl respectively and second time TFT at the 4th week revealed normal TSH, FT4 and FT3 levels in 15(71.4%) patients. The thyroid profile at 24th week revealed normal TSH ,FT4 and FT3 levels with mean±SD of 2.5 ± 2.4 mIU/l, 1.4 ± 0.9 ng/dl and 250±110 pg/dl respectively. [Table 3A & 3B]

Table 3 A: Laboratory Results at the time of presentation

Laboratory Test	Mean±SD	Refrence Range
TSH	0.20 ± 0 .4	0.5-6 mIU/L
FT4	2.8 ± 1.4	0.7-1.9ng/dl
FT3	711 ± 325	230-619pg/dl
ESR	56 ± 38.2	0-22mm/h(Male) 0-29mm/h(Female)
CRP	54. 2 ± 35.2	<3.0mg/dl

Table 3 B:Repeat (Thyroid function test at 24th week)

Laboratory test	Mean±SD
TSH	2.5± 2.4 mIU/L
FT4	1.4 ± 0.9 ng/dl
FT3	250± 110 pg/dl

On ultrasonographhy SAT lesions were hypoechoic, heterogeneous and nodular in 21 (100%) patients,18 (85.7%) patients and 3 (14.3%) patients respectively. The mean size of SAT lesion was 29.4 mm (ranging 5-46mm) and the vascularization of SAT lesion was decreased in 16 (76.2%) patients, normal in 3 [14.3%] patients and increased in 2 (9.5%) patients.

Table 4: Sonographic characteristics of SAT lesions.

Sonograghic features		No. of Patients
Echogenecity	Hypoechoic	21
	Heterogeneous	18
Nodular lesion		3
Vascularity	Decreased	16
	Normal	3
	Increased	2

Steroids were administered in all patients. Oral steroids in the form of Prednisolone 0.5 mg/kg /day or equivalent doses of methyl prednisolone were given in the first week and then tapered over a period of 1-2 weeks as per the Improvement of symptoms. The mean duration of steroid use was 14 days. Some patients were prescribed NSAIDS along with intraoral steroids.

At 24th week thyroid profile was within normal range in 17 (80.96%) patients and revealed hypothyroid status in 4 (19.04%) patients.

DISSCUSSION:

This prospective study was conducted in Department ENT & HNS, SKIMS MCH Bemina, Srinagar.

In our study maximum number of patients i.e 47.7% were in the age group of 41- 50 years. Similar observation was made by Elbaken G1, Vahabet. Al[4]. In our study incidence of disease was more common in females (66.7% patients.) In the study conducted by Capplli et.al[5], the gender preference towards females [F:M ratio of [6]:1] was also noted.

In the present study 7 (33.33%) patients had history of upper respiratory tract infection in the preceeding 3-4 weeks.The study by E.Nishihara etal6 observed the similar pattern in history in 23% patients.

Our main criteria of diagnosing SAT was painful thyroid gland and it was present in all patients(100%). Similar observation was made by Vahab et.al[4]. In their study thyroid pain was present in 90 (95.8%) patients and absent in 4 (4.2%) patients.

In our study palpable nodules were noted in 3(14.3%) patients. Similar observation was made by Vahab et.al[4], who reported palpable nodules in 21(22.3%) patients.

In the present study 15 (71.43%) patients had received either single or more than one course of antibiotics for an average period of 8-10 days by initial healthcare providers without reducing or alleviating any of the symptoms of SAT. Similar observations have been made by M.Stasiak etal[7] and they have recommended against the use of antibiotics.

The hallmark of SAT is markedly elevated ESR. ESR is usually higher than 50mm/hr in initial phase in upto 70 % of patients as reported by Jenice et al[8]& E Nishihare et.al6.Our study is consistent with above studies i.e. primary ESR was elevated with mean ± SD of 56± 38.2mm/hr .

In our study TFT at the time of presentation revealed a suppressed TSH and elevated FT4 and FT3 levels with mean ± SD of 0.2 ± 0.4 mIU/L, 2.8 ± 1.4 ng/dl and 711±325pg/dl respectively. Similar observations were made by Assim et.al[2].

In our study on ultrasonography SAT lesions were hypoechoic, heterogeneous and noduler in 21 (100%) patients,18 (85.7%) patients and 3 (14.3%) patients respectively. Similar observation was made by M Stasiak et.al[9]

In our study mean size of SAT lesion was 29.4mm (ranging from 5-46mm). Similar size range was observed by Vural et.al[10]. who described lesion size in the range of 7- 71mm in a group of 20 SAT patients.

In our study, the vascularisation of SAT lesion was decreased in 16 (76.6%) patients, normal in 3 (14.3%) patients and increased in 2 (9.5%) patients. Similar observation was made by M Stasiak et.al[9].

In the literature, persistent hypothyroidism was reported in 14.3 to 25% of patients after an episode of SAT[2,4]. In our study 4 (19.04%) patients had persistent hypothyroidism.

Conclusion

SAT is an uncommon condition and the criteria for diagnosis are pain and/ or tenderness of thyroid gland/Lobe,elevation of ESR and / or CRP and elevation of FT4 and suppression of TSH with USG findings of hypoechoic area with decreased vascularisation. Even though diagnosis is mainly on clinical presentation, easily available laboratory investigations and USG neck, the diseases is usually missed by initial healthcare providers.

There is need to increase the awareness among initial healthcare providers about this condition. It

will help in early diagnosis ,thus reducing the morbidity and duration of the disease besides avoiding unnecessary antibiotic prescription.

BIBLIOGRAPHY

1. GulsahElbuken, OzgeTasgin-Yildirim, Ismail Yildiz, SayidShafiZahoor. Clinical Characteristics of patients with Subacute Thyroiditis in a Tertiary hospital. International Journal of Internal medicine 2019, 8[1]:11-15.
2. Assim A. Alfadda, ReemM.Sallam, Ghadi E. Elawad, HishamAlDhukair, Mossaed M. Alyahya. Subacute Thyroiditis: Clinical presentation and long term outcome. International journal of Endocrinology.Vol 2014(2) 794943.
3. Takahashi MS, Pedro HM Moraes, Chammas MC. Ultrasound Evaluation of Thyroiditis: A Review. Journal of Otolaryngology Research. February 25, 2019;2(1):127.
4. VahabFatourechi, JaroslawP.Aniszewski, GuitiZ.EghbaliFatourechi, Elizabeth J. Atkinson, Steven J. Jacobsen. Clinical features and outtcome of Subacute Thyroiditis in an incidence cohort: Olmsted County, Minnesota study. Journal of Clinical Endocrinology and Metabolism. 2003,88[5]: 2100-2105.
5. C. CappliI.Pirola, E. Gandossi, A. Formenti, B. Agosti, M. Castellano. "Ultrasound Findings of Subacute Thyroiditis: A single Institution retrospective review". ActaRadiologica, 2013.
6. Eijun Nishihara, HidemiOhye, Nobuyuki Amino, KazunaTakata, Takeshi Arishima , Takumi Kudo et al. Clinical characteristics of 852 patients with subacute thyroiditis before treatment. Inter Med 47: 725-729,2008
7. Magdalena Stasiak, RenataMichalak, BartlomiejStasiak, Andrzej Lewinski. Time lag between symptom onset & diagnosis of subacute thyroiditis- how to avoid the delay of diagnosis & unnecessary overuse of antibiotics.HormMetab Res 2020 Jan; 52(1): 32-38
8. Jenice J, Krishnaraj U. Clinical and cytomorphological study of Dequervains thyroiditis. IJBR ,2014;05(09):59-62.
9. Magdalena Stasiak, BoguslawTymoniuk, ZbigniewAdamczewsk, Bartiomiej Stasiak, Andrzej Lewinski. Sonographic pattern of Subacute Thyroiditis is HLA- dependent. Frontiers in Endocrinology, January 2019; Vol 10: Article 3.
10. Vural C, Paksoy N, Gok ND, Yazal K. Subacute Granulomatous [De quervains] Thyroiditis: Fine needle aspiration cytology and Ultrasonographic characteristics of 21 cases. Cyto Journal [2015] 12:9

Original article

A RANDOMIZED CONTROLLED STUDY OF PORT SITE CLOSURE USING 2-OCTYL CYANOACRYLATE VERSUS CONVENTIONAL SUTURING, POST LAPAROSCOPIC CHOLECYSTECTOMY

Tapsi Sharma , Neeraj Kaul, Ajay Kumar , Puneeta Gupta,Sandeep Bhat*, K S Mehta, , B S Pathania.

Abstract

Background:

Wound closure techniques have evolved over a period of time. Several different materials have been used to close the surgical wounds, each with its own set of advantages and shortcomings.We conducted the study to assess the outcome of 2-octyl cyanoacrylate application versus the conventional suturing of port sites, following laparoscopic cholecystectomy.

Material and methods:

This randomized study was conducted in post-graduate department of surgery in a tertiary care teaching hospital in North India. 100 patients were enrolled in the study design and divided into two groups, A and B having 50 patients each. The 10 mm port sites in group A were approximated with 2-octyl cyanoacrylate whereas in group B 10mm port sites were closed with 3/0 polyamide sutures. Both the groups had similar demographic features. Our assessment criteria included time taken for closure, wound related morbidity & patient satisfaction based on cosmetic appearance of the wound.

Results:

Time taken for closure of port sites in group A was significantly less in comparison to the group B (143.4±17.26 versus 227.1±13.25 seconds). Patients in group A complained of less pain than those of group B; 18% versus 46% at one week and 8% versus 18% at 2 weeks respectively. At 2 months follow up, patient satisfaction regarding cosmetic appearance based on visual analogue score was significantly more in group A (32%) in comparison to group B (10%).

Conclusion:

10 mm port site closure using 2-octylcyanoacrylate is an effective approach and is significantly better in terms of time consumed, wound morbidity and patient satisfaction when compared to port site closure using 3/0 polyamide sutures, following laparoscopic cholecystectomy.

JK-Practitioner2021;26(1):19-23

Introduction

Proper wound closure is one of the most important aspects of successful wound care. The ideal wound closure material ensures rapid and easy application, less pain and tissue desiccation with minimal chances of infection and scarring apart from being inexpensive.[1] Different materials find a mention in the suturing history be it the plant fibers, tendons or the woven horse hair to begin with and cotton, silk and linen towards the later part. [2]

With the evolution of advancing technology, arrays of synthetic polymeric threads, skin adhesives, surgical staples and tapes have supplemented the armamentarium of wound closure techniques. The wound adhesive 2-octyl cyanoacrylate is approved by the US Food and Drug Administration (FDA) for closure of incised skin (US Food and Drug Administration. Accessed: February 10, 2011).The cyanoacrylates

Author Affiliations

Tapsi Sharma MS , Senior Resident ; **Neeraj Kaul** MS , Associate Professor; **Sandeep Bhat** MS, Consultant ; **K S Mehta** MS , Professor & Head ; **B S Pathania** MS , FMIS, ;Professor & HOU.

Department of Surgery :

Ajay Kumar, MD Associate Professor, Department of Pharmacology

Puneeta Gupta MD , Professor Department of Medicine.

ASCOMS, Jammu, J&K, India

***Correspondence:**

Dr Sandeep Bhat
House No 21, Lane 1/A Roop Nagar Enclave
Jammu, J&K, India
Tel: 9419132941, 9419110052
Email:drsandipbhat@gmail.com

Indexed:

Scopus ,INMED , EBSCO @ Google Scholar among others

Cite This Article as:

Sharma T, Kaul N, Kumar A, Gupta P , Bhat S , Mehta HS , Pathania BS.A Randomized Controlled Study Of Port Site Closure Using 2-Octyl Cyanoacrylate Versus Conventional Suturing, Post Laparoscopic Cholecystectomy.
JK Pract 2021;26(1):19-23

Full length article available at **jkpractitioner.com** one month after publication

Key words:

2-octylcyanoacrylate, laparoscopic cholecystectomy, port site, suture

were first synthesized in 1949 by Airdis. [3] Coover HN et al described their adhesive properties and suggested their possible use as surgical adhesives.[4]

The cyanoacrylate tissue adhesives are liquid monomers that polymerize on contact with fluid or basic medium, thereby forming a strong bond when applied to moist skin.[5] However, their use has been restricted to small, low-tension lacerations and incisions. The development and introduction of the stronger and more flexible octyl-cyanoacrylate (OCT) in 1998 has been a major advance in the wound closure field and has been used widely. Along with increased flexibility, it has four times the breaking strength of the older type cyanoacrylate.

We conducted the study to evaluate the efficacy of 2-octyl cyanoacrylate tissue adhesive versus the3-0 polyamide suture for the approximation of 10 mm port sites following laparoscopic cholecystectomy and to compare various parameters which included time taken for closure, wound morbidity and cosmetic appearance.

MATERIAL AND METHODS:

The prospective randomized study was carried out in the postgraduate Department of General Surgery in a teaching tertiary care hospital in North India for a period of one year after it was approved by the Institutional Ethical Committee.

100 patients admitted for elective laparoscopic cholecystectomy were divided into two groups of 50 each using computer randomization. Exclusion criteria included Immunocompromised patients including diabetes, allergy to skin adhesives, history of corticosteroid therapy, intraoperative enlargement of port sites for gall bladder removal.

Method of collection of data:

The selected patients were evaluated with detailed history, clinical examination and routine investigations and prepared for elective laparoscopic cholecystectomy. Preoperative shaving of the part was done at the same time on previous evening. Injection cefoperazone 1gm was given intravenously to all the patients at the time of induction. After the completion of surgery, port sites were assessed for hemostasis and contamination if any and 10mm port sites were closed either with suture or 2-octyl cyanoacrylate in respective groups.

Group A: Patients underwent port site wound closure with 2-octyl cyanoacrylate after approximation of subcutaneous tissue with 3/0 poliglecaprone.

Group B: Patients underwent port site wound closure with 3/0 polyamide, using mattress sutures.

Technique of closure with skin adhesive:

1) Applicator was held away from the patient with the tip pointing upwards.
2) The bulb was squeezed to crush the ampoule inside and pressure was released.
3) Bulb was squeezed again to moisten the internal filter with adhesive.
4) Wound edges were approximated using forceps.
5) The wound adhesive was applied in single continuous layer maintaining steady bulb pressure.
6) A second coat was applied after 30 seconds.
7) Port site was left untouched for about 3 minutes for full polymerization.
8) A dry dressing was applied only after complete polymerization of skin adhesive. Patients were instructed to take care of the wound and not to remove the polymerized film at the wound site for the next 7 days.

Outcome variables:

Both the groups were assessed in terms of time taken in seconds for the closure of 10mm ports. Evaluation of the wound was done postoperatively in both groups at one week and two weeks in terms of pain, erythema, discharge, infection and wound dehiscence. Wound was assigned 1 or 0 points each in the presence or absence of the above-mentioned complications.

Assessment of patient satisfaction based on cosmetic appearance of the healed wound was done at end of 2 months. Patients were asked to score the cosmetic appearance ranging from 1-10. Patients were graded as un-satisfied (score 1-4), satisfied (score 5-7) and highly satisfied (score 8-10) based on the score given. The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Continuous variables were summarized as Mean ± SD and categorical variables were expressed as frequencies and percentages. Graphically the data was presented by bar diagrams. Student's independent t-test was employed to analyze the statistical differences in parametric data. Chi-square or Fisher's exact test, whichever appropriate, was applied for categorical data. A P-value of less than 0.05 was considered statistically significant.

RESULTS:

The data obtained was analyzed and final results and interpretations were presented in terms of demographic variables, time taken, the condition of wound and patient satisfaction vis a vis cosmetic appearance of the wound. Most of the patients belonged to age group of 45 years to 59 years (34% in group A and 32% in group B) [Table1]. Female preponderance was there with 72% of patients in group A and 66% in group B [Table 1]. Both the differences were statically insignificant. In the

present study the mean time taken for closure of port sites in group A was significantly less in comparison to the group B (143.4±17.26 versus 227.1±13.25 seconds: P< 0.001, [Table 2].

Assessment of the wound variables at one week is depicted in table 3. Patients in group A complained of less pain than those of group B which was found to be statically significant (18% versus46%, p=0.003). However, discharge, erythema and dehiscence were comparable in group A and B (p>0.050). Wound condition at two weeks is depicted in table 3. Pain was present in 8% patients in group A compared to 18% in group B. Discharge, erythema and dehiscence were comparable in both the groups. At 2 months follow up, patient satisfaction regarding cosmetic appearance based on visual analogue score was significantly more in group A (32%) in comparison to group B (10%). Again the difference is statistically significant (p=0.015,Table 4].

Table 1. Age and gender distribution of study patients among two groups

Age and Gender distribution among two study groups		
1. Age (Years)	Group A(n=50) N(%)	Group B(n=50) N(%)
<30	11(22)	7(14)
40-44	14(28)	15(30)
45-59	17(34)	16(32)
>60	8(16)	12(24)
Mean±SD	45.3±15.37	47.5±16.67
P-value0.490		
1. Gender		
Male	14(28)	17(34)
Female	36(72)	33(66)
P-value	0.517	

Table 2. Mean Surgical Time for Wound Closure

	Time (seconds) Mean±SD	Range	P-value
Group A(n=50)	143±17.26	113-168	<0.001*
Group B(n=50)	227.1±13.25	209-251	

Table3.Wound condition at one and two weeks among two groups

Wound condition at one week		Group A N(%)	Group B N(%)	P-value	Wound condition at two weeks		Group A N(%)	Group B N(%)	P-value
Pain	Present	9(18)	23(46)	0.003*	Pain	Present	4(8)	9(18)	0.234
	Absent	41(82)	27(54)			Absent	46(92)	41(82)	
Discharge	Present	2(4)	5(10)	0.436	Discharge	Present	0(0)	1(2)	1.000
	Absent	48(96)	45(90)			Absent	50(100)	49(98)	
Erythema	Present	0(0)	2(4)	0.495	Erytheme	Present	0(0)	0(0)	-
	Absent	50(100)	48(96)			Absent	50(100)	50(100)	
Dehiscence	Present	1(2)	3(6)	0.617	Dehiscence	Present	0(0)	2(4)	0.495
	Absent	49(98)	47(94)			Absent	50(100)	48(96)	

**Statistically Significant Difference (P-value<0.05)*

Table 4: Comparison based on patient satisfaction regarding cosmetic appearance among two groups

Patient Satisfaction	Group A N(%)	Group B N(%)	P-value
Unsatisfied	5(10)	11(22)	0.015*
Satisfied	29(58)	34(68)	
Highly Satisfied	16(32)	5(10)	
Total	50(100)	50(100)	

**Statistically Significant Difference (P-value<0.05)*

DISCUSSION:

The method of closing laparoscopic wounds has evolved over time, from sutures to skin staplers and adhesive tapes, and more recently skin adhesive glues. With so many methods available for skin closure and each method having its own advantages and disadvantages, it becomes imperative to know which method is best suited in a particular setting.

Approximation of the skin incision using adhesive glues is potentially least invasive method and appears most feasible. However, the advantage if any needs to be established in terms of clinical parameters. Hence our study was undertaken to compare 2-octyl cyanoacrylate application with conventional suturing of 10 mm port sites during laparoscopic cholecystectomy. The parameters for comparison included time taken for closure, wound condition and cosmetic outcome on follow up.

100 patients admitted for elective laparoscopic cholecystectomy were divided into two groups of 50 each using computer randomization. Exclusion criteria included immunocompromised patients, diabetes mellitus, allergy to skin adhesives, history of corticosteroid therapy, intraoperative enlargement of port sites and or port sites contamination.

Time for 10 mm port closure in group A was 143.40 ± 17.26 seconds compared to 227.10 ± 13.28 seconds in group B which was statistically significant (p<0.001). Similar observations have been documented in various studies. One of the earliest studies conducted by Quinn J. et al, in 1997 reported similar results.[6] Consistent reports were published by Haider Jan et al and Sajid M Set al.[7, 8] However, a Cochrane review incorporating many trials found the sutures significantly faster to use when compared to the glue.[9] Plausible explanation for the contrary results rests on the facts the glue application is a skill just like suturing and has a learning curve.[5] Also working in the surgical field without too many instruments, sutures and needles probably makes it easier, safer and more convenient.[10] Also one doesn't have to bother about the risk of needle stick injury.

In our study, at one week follow up, there was

statistically significant difference in pain in both the groups. 18% of patients in group A had mild pain or discomfort at wound site compared to 46% of patients in group B (p=0.003).At 2 weeks follow up the difference still persisted however it was not statistically significant. Although there was lower rate of dehiscence, erythema and discharge seen in wounds closed with 2-octylcyanoacrylate as compared to sutures but the difference was not statistically significant. Similar observations were made by Chen K et al where in the incidence of patients with complications including erythema, tenderness and drainage was lower with 2-octylcyanoacrylate than with sutures. Also, ports closed with 2-octyl cyanoacrylate had lower margin separation (P<0.05).[11] It was concluded that laparoscopic ports closed with 2-octylcyanoacrylate had fewer early complications when compared with conventional suturing. In contrast the study done by Singer AJ et al revealed comparable infection and wound dehiscence rates at one week, however fewer of the2-octyl cyanoacrylate wounds were erythematous (18% vs 36%, P <.001).[12]

The report published by Clement TH Chan et al and an update by Dragu A et al incorporating many trials revealed decreased rates of dehiscence and even faster closure time with conventional suturing compared to 2-octyl cyanoacrylate.[5,13] The plausible explanation for the divergent reports lies in the training and the expertise in the particular method of skin approximation. Glue application is an art and needs to be taught well to the residents. Closure of the wounds that are not dry enough or harboring underlying collection is bound to give way. Similarly, wrong suture selection and or improper suturing technique are not going to fare well. Meticulous application of glue seals off the tissue immediately while as epithelization after suturing takes approximately 48 hours. Moreover, sutures can also at times act as a conduit for microorganisms thereby exposing the patients to possible risk of wound complications.[14]

In a multicenter randomized clinical trial Singer AJ et al compared eight hundred and fourteen patients with nine hundred and twenty-four patients at a follow up of three months and found no statistical difference vis a vis the cosmetic appearance of the wound. [12] Once the scar settles down the outcome becomes comparable. However, the ethnic descent of the patient influences the appearance of the post-operative scar.[5] In a study conducted by Quinn J. et al, there was no significant difference in cosmesis based on visual analogue score (p=0.65).Where as in our study10 mm port closure using 2-octyl cyanoacrylate required significantly less time, with less post-operative pain, less wound related complications and hence achieved a better cosmetic outcome as compared to closure with3-0 polyamide suture. In group A, 32% of patients were highly satisfied compared to 10% in group B regarding cosmetic appearance of the wound which was statistically significant (p=0.015). Similar observations were made in a study by Toriumi DM et al, where the results of the visual analogue scale ratings at one year stood at 21.7 ± 16.3 for the 49 patients treated with 2-octyl cyanoacrylate and 29.2 ± 17.7 for the 51 control patients treated with sutures [15]. There was superior cosmetic outcome and the difference was statistically significant (p, 0.03). Additionally, patient satisfaction was very high in the group treated with 2-octyl cyanoacrylate.

Conclusions

10 mm port site closure using 2-octylcyanoacrylate is an effective approach and is significantly better in terms of time consumed, wound morbidity and patient satisfaction when compared to port site closure using 3/0 polyamide sutures, following laparoscopic cholecystectomy.

We believe that increased patient satisfaction post 2-octyl cyanoacrylate application is multifactorial. Glue seals off the wound immediately and there is no need for frequent dressings and removal of sutures or staples. Patient is spared frequent visits to the hospital which reflects positively on the state of mind of the patient. Also, post-operative discomfort at port site and the hatch marks left by the sutures has a bearing on cosmetic appearance and patient satisfaction.Pertinent to mention here that all factors put together improve the quality of life of the patient.

Hence, we strongly recommend the application of 2-octyl cyanoacrylate for closure of 10mm port sites as it saves time, causes less pain and morbidity and ensures better cosmetic appearance and has a positive bearing on quality of life.

References:

1. Al-Mubarak L, Al-Haddab M.Cutaneous wound closure materials: an overview and update. J Cutan Aesthet Surg 2013;6(4):178-88.
2. Snyder CC. On the history of suture. Bull Hist Dent 1977; 25:79–84.
3. Ardis AE. US. Patents No. 2467926 and 2467927. New formulation of 2-octylCA tissue adhesive versus commercially available methods. Am J Surg 1949; 188:307–313.
4. Coover HN, Joyner FB, Sheere NH et al. Chemistry and performance of cyanoacrylate adhesive. J Soc Plast Surg Eng 1959; 15: 5-6.

5. Clement TH Chen, Catherine LY Choi, Dacita TK SuAva Kwong. A prospective randomized controlled trial of octyl cyanoacrylate tissue adhesive and standard suture for wound closure following breast surgery. Hong Kong Med J 2016; Volume 22: Number 3.
6. Quinn J, Wells G, Sutcliffe T, Jarmuske M, Maw J, Stiell I. A randomized trial comparing octyl cyanoacrylate tissue adhesive and sutures in the management of lacerations. JAMA 1997; 277(19):1527-30.
7. Haider Jan, Natasha Waters, Pat Haines,Andrew Kent. LiquiBand® Surgical S topical adhesive versus sutures for the closure of laparoscopic wounds. A randomized controlled trial. Gynecol Surg 2013; 10:247–252.
8. Sajid MS, Siddiqui JR, Khan MA,Baig MK. Meta-analysis of skin adhesives versus sutures in closure of laparoscopic port-site wounds. Surg Endosc 2009;23(6):1191-7.
9. Coulthard P, Worthington H, Esposito M,Elst M, Waes OJ.Tissue adhesives for closure of surgical incisions. Cochrane Database Syst Rev 2004;2:CD004287
10. Dikran G Hovaghimian MD, Khaled A Abou Sedira, Mohamed Y Farag. N-butyl-2-cyanoacrylate tissue adhesive dacryocystorhinostomy. Delta Journal of Ophthalmology 2015; 16:97–102.
11. Chen K, Klapper AS, Voige H,Del Priore G. A randomized, controlled study comparing two standardized closure methods of laparoscopic port sites. JSLS 2010 Jul-Sep;14(3):391-4.
12. Singer AJ, Quinn JV, Clark RE, Hollander JE; TraumaSeal Study Group. Closure of lacerations and incisions with octyl cyanoacrylate: a multicenter randomized controlled trial. Surgery. 2002 Mar. 131(3):270-6.
13. Dragu A, Unglaub F, Schwarz S, Beier JP, Kneser U, Bach AD et al. Foreign body reaction after usage of tissue adhesives for skin closure: a case report and review of the literature. Arch Orthopedic Trauma Surg 2009;129(2):167-9.
14. Shanthi Ponnandai Swaminathan, Arun Victor Jebasingh, Annadurai Anbuselvi, MannarMannan et al. A study on comparison of conventional suturing and tissue adhesive (2-octyl cyanoacrylate) for skin closure in inguinal hernia surgeries. Int Surg J. 2019 ;6 (1):188-192
15. Toriumi DM, O'Grady K, Desai D, Bagal A. Use of Octyl-2-Cyanoacrylate for skin closure in facial plastic surgery. Plastic and Reconstructive Surgery. 1998;102(6):2209-19.

Original article

EFFICACY AND SAFETY OF LINEZOLID AND AMINOPENICILLIN/BETA LACTAMASE INHIBITORS FOR TREATMENT OF PATIENTS WITH DIABETIC FOOT ULCER: A COMPARATIVE STUDY

Robindera Kaur ,Gurpreet Kaur , Iqbal Singh , KK Gupta , Rajiv Sharma

Abstract

Aim:

To compare the efficacy and safety of Linezolid and Aminopenicillin / beta lactamase inhibitors for treatment of patients with diabetic foot ulcer

Materials and methods:

Prospective comparative study was conducted among 60 consecutive patients with diabetic foot ulcer admitted in Department of General surgery of Government Hospital Sarwal, Jammu, India. Patients were randomized to receive both (Group A) linezolid and (Group B) ampicillin-sulbactam (1.5–3 g q6h iv), or amoxicillin-clavulanate. The duration of treatment was 7 days but not >28 days.

Results: Among 60 patients, the clinical efficacy and safety were comparable for patients in both the groups.. Mean age of (group A) 54.29±3.59 and (group B 55.01±2.19). Drug-related adverse events were significantly more common in the linezolid group, but they were generally mild and reversible.

Conclusion:

Study demonstrates that therapy with linezolid is at least as effective as aminopenicillin and b-lactamase inhibitors the most frequently used agents among patients with of diabetic foot ulcer.

JK-Practitioner2021;26(1):24-27

Introduction

Diabetic foot infections are often polymicrobial in nature; however, aerobic Gram-positive bacteria that are multidrug sensitive and multidrug resistant (MRSA, VRE) are frequent causative pathogens. Foot ulcers occur in 5–10% of the diabetic population and are associated with increasing morbidity and mortality, with up to 3% having had a lower limb amputation. Infected diabetic foot ulcers are the commonest cause of admission for diabetic patients, accounting for about 20% of diabetes-related admissions.[1]

Linezolid is a novel oxazolidinone agent that has demonstrated activity against antibiotic-susceptible and antibiotic-resistant gram-positive organisms.[2,3] The oral form of linezolid is 100% bioavailable, allowing for an early switch from i.v. to oral therapy.[4,5]

Linezolid has a unique mechanism of action whereby it selectively binds to the 50S ribosomal unit and prevents formation of the initiation complex. This action is thought to prevent cross-resistance with other antimicrobial agents.[6]

linezolid is expensive, and some clinicians prefer to reserve it for treatment of documented antibiotic-resistant organisms. The aminopenicillin/ b-lactamase inhibitors ampicillin-sulbactam and amoxicillin- clavulanate are broad-spectrum antibiotics that are among the most widely used agents for these infections.[7] Due to paucity of the data in the previous literature the present study was conceived with the

Author Affiliations

Robindera Kaur, Incharge Consultant Surgery,
KK Gupta Consultant Surgeon,
Rajiv Sharma, Medical Superintendent;
Government Hospital Sarwal
Gurpreet Kaur Medical Officer ASCOMS;
Iqbal Singh Assistant Professor, Public Health Dentistry,
Indira Gandhi Government Dental College.

Jammu, India

Correspondence
Dr. Robindera kour,
In charge Consultant Surgery, Govt. Hospital Sarwal
Email: kourrobindera@gmail.com

Indexed
Scopus, INDMED, EBSCO & Google Scholar among others

Cite this article as:
Kaur R , Kaur G , Singh I , Gupta KK , Sharma R. Efficacy And Safety Of Linezolid And Aminopenicillin / Beta Lactamase Inhibitors For Treatment Of Patients With Diabetic Foot Ulcer: A Comparative Study JK Pract2021;26(1):24-27

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Aminopenicillin, b-lactamase inhibitors, Linezolid, diabetic foot ulcer

aim to compare the efficacy and safety of linezolid with that of aminopenicillin/beta lactamase inhibitors for treatment of patients with diabetic foot ulcer.

Material & Methods

Study Design

A Prospective comparative study was conducted among 60 consecutive patients with diabetic foot ulcer admitted in Department of General surgery of Government Hospital Sarwal, Jammu, India.

Ethical approval and Informed consent

The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

Inclusion Criteria

- Patients above 18 years of age and willing to participate in study.
- Patients Diabetes Mellitus (diagnosed on the basis of the American Diabetes Association's definition)[8] and foot ulcers were potentially eligible.

Exclusion Criteria

- Patients who are not willing to give written informed consent
- Patients with critical ischemia of the affected limb
- Patients on antibiotic therapy

Sample selection

The sample size was calculated using a prior type of power analysis by G* Power Software Version 3.0.1.0 (Franz Faul, Universitat Kiel, Germany). The minimum sample size of each group was calculated, following these input conditions: power of 0.80 and P 0.05 and sample size arrived were 60 patients i.e 30 per group.

Methodology

Patients were randomized to receive either linezolid and ampicillin-sulbactam (1.5–3 g q6h iv), or amoxicillin-clavulanate. The duration of treatment was 7 days but not >28 days.

Group-A

Patients received linezolid (600 mg q12 h either iv or po).

Group-B

Patients received ampicillin-sulbactam (1.5–3 g q 6h iv), or amoxicillin-clavulanate (500–875 mg every 8–12 h po).

Methodology

Detailed history of the patients was obtained including the demographic, clinical and associated problems. Each patient provided a medical history and underwent a physical examination. The ulcer site was assessed for drainage, erythema, fluctuance, warmth, pain or tenderness, and induration.

Statistical Analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages.

Results

Table 1: Demographic details of the study population

Variables	Group A	Group B
Gender		
Male	13 (52.0%)	14 (56.0%)
Female	12 (48.0%)	11 (44.0%)
Age (Years)		
Mean±SD	54.29±3.59	55.01±2.19
Ulcer Size		
<2.5 cm	13 (52.0%)	11 (44.0%)
>2.5 cm	12 (48.0%)	14 (56.0%)
Duration of ulcer		
< 5 months	14 (56.0%)	13 (52.0%)
> 5 months	11 (44.0%)	12 (48.0%)
Ulcer site		
Fore foot	8 (32.0%)	7 (28.0%)
Mid foot	11 (44.0%)	10 (40.0%)
Hind foot	6 (24.0%)	8 (32.0%)

Table 2: distribution of adverse effects

Adverse Effects	Group A N=25	Group B N=25
Diarrhea	8 (32.0%)	7 (28.0%)
Nausea	4 (16.0%)	3 (12.0%)
Vomiting	3 (12.0%)	3 (12.0%)
Abdominal Pain	2 (8.0%)	2 (8.0%)
Anemia	2 (8.0%)	2 (8.0%)
Rash	2 (8.0%)	1 (4.0%)

Table 3: treatment outcome at follow-up

Outcome	Group A	Group B
Ulcer Healed	17 (68.0%)	14 (56.0%)
Ulcer not Healed	8 (32.0%)	11 (44.0%)

Discussion

Many organisms may cause foot infections in diabetic patients, but aerobic gram-positive cocci are the most frequent and virulent pathogens.[9,10] Thus, therapy for these infections requires an antibiotic active against staphylococci and streptococci.

The increasing prevalence of antibiotic resistance among these species (especially MRSA) is disconcerting, because infections with these organisms may have a worse outcome and necessitate selecting from a smaller group of antibiotics.[11,12] Traditionally, diabetic foot infections have been treated intravenously to assure adequate antibiotic concentrations, especially in patients with severe infection or peripheral vascular disease .[13] Newer agents (e.g., linezolid and the fluoroquinolones) with therapeutically equivalent intravenous and oral formulations allow initial treatment to be oral for persons who are clinically stable and allow an early switch from intravenous to oral antibiotics for those who are responding to therapy.[14]

The few previous antibiotic trials of diabetic foot infections have differed in their designs, drug regimens, efficacy end points, and types and severities of infections included, making their results difficult to compare.[15] Overall, however, outcomes with various antibiotics have been similar, with no one drug or combination being superior.[16]

Linezolid was associated with more drug-related adverse events than were aminopenicillin/the b-lactamase inhibitors, but most of these events were mild, reversible, and did not require drug discontinuation. Few adverse effects like Anemia might associated with linezolid therapy were related to the duration of therapy

Conclusion

This study demonstrates that therapy with linezolid is at least as effective as aminopenicillin and b-lactamase inhibitors (plus vancomycin for treatment of MRSA), the most frequently used agents among patients with various types of diabetic foot infections. There is less clinical experience with linezolid, and it was associated with more adverse effects; however, it has excellent pharmacokinetic properties and offers additional coverage against drug-resistant gram-positive organisms. Linezolid would be appropriate to consider for patients with diabetic foot infections that are known or suspected to be caused by MRSA.

References

1 Dang CN, Prasad YDM, Boulton AJM, Jude EB. Methicillin-resistant staphylococcus aureus in the diabetic foot clinic: a worsening problem. Diabet Med 2003;20:159-61.

2 Ballow, C. H., R. N. Jones, D. J. Biedenbach, and the North American ZAPS Research Group. 2002. A multicenter evaluation of linezolid antimicrobial activity in North America. Diagn. Microbiol. Infect. Dis. 43:75–83.

3 Mutnick, A. H., D. J. Biedenbach, J. D. Turnidge, and R. N. Jones. 2002. Spectrum and potency evaluation of a new oxazolidinone, linezolid: a report from the SENTRY Antimicrobial Surveillance Program, 1998–2000. Diagn. Microbiol. Infect. Dis. 43:65–73

4 Gee T, Ellis R, Marshall G, Andrews J, Ashby J, Wise R. Pharmacokinetics and tissue penetration of linezolid following multiple oral doses. Antimicrob Agents Chemother. 2001; 45(6): 1843-6.

5 Welshman IR, Sisson TA, Jungbluth GL, Stalker DJ, Hopkins NK. Linezolid absolute bioavailability and the effect of food on oral bioavailability. Biopharm Drug Dispos. 2001; 22(3): 91-7.

6 Shinabarger DL, Marotti KR, Murray RW, Lin AH, Melchior EP, Swaney SM, Dunyak DS, Demyan WF, Buysse JM. Mechanism of action of oxazolidinones: effects of linezolid and eperezolid on translation reactions. Antimicrob Agents Chemother. 1997 Oct;41(10):2132-6.

7 Arlington Medical Resources (AMR). The US hospital anti-infective market guide (USA and Europe editions). Malvern, PA: AMR, 2003.

8 Report on the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Diabetes Care 2002; 25(Suppl 1):S5–20.

9 Lipsky BA, Pecoraro RE, Larson SA, Hanley ME, Ahroni JH. Outpatient management of uncomplicated lower-extremity infections in diabetic patients. Arch Intern Med 1990; 150:790–7.

10 Tentolouris N, Jude EB, Smirnof I, Knowles EA, Boulton AJM. Methicillin- resistant Staphylococcus aureus: an increasing problem in a diabetic foot clinic. Diabet Med 1999; 16:767–71.

11 Mantey I, Hill RL, Foster AV, Wilson S, Wade JJ, Edmonds ME. Infection of foot ulcers with

Staphylococcus aureus associated with increase mortality in diabetic patients. Commun Dis Public Health 2000; 3:288–90.

12 Fejfarova´ V, Jirkovska´ A, Skibova´ J, Petkov V. Pathogen resistance and other risk factors in the frequency of lower limb amputations in patients with the diabetic foot syndrome [in Czech]. Vnitr Lek 2002; 48:302–6.

13 West NJ. Systemic antimicrobial treatment of foot infections in diabetic patients. Am J Health Syst Pharm 1995; 52:1199–207.

14 Ramirez JA. Managing antiinfective therapy of community-acquired pneumonia in the hospital setting: focus on switch therapy. Pharmacotherapy 2001; 21:79S–82S.

15 Mason J, O'Keeffe C, Hutchinson A, McIntosh A, Young R, Booth A. A systemic review of foot ulcer in patients with type 2 diabetes mellitus II. Treatment. Diabet Med 1999; 16:889–909.

16 Lipsky BA. Evidence-based antibiotic therapy of diabetic foot infections. FEMS Immunol Med Microbiol 1999; 26:267–76.

Original article

PATTERN OF PRESENTATION AND MANAGEMENT OF CA BREAST- A DEPARTMENTAL AUDIT AT REGIONAL CANCER CENTRE OF KASHMIR – AN UNMET NEED OF SENTINEL LYMPH NODE BIOPSY (SNB)

Ab Wahid Mir, Shah Naveed , Altaf Gauhar Haji, Sheikh Zahoor, Azhar Jan Batoo

Abstract

Introduction /Background /Objective :

Breast carcinoma is a serious health problem and is among the major health issues in India. SNB is standard of care for pathological staging of cN0 axilla in patients with early breast cancers with low morbidity and without compromising the oncological outcome. The technique could not be performed by us in view of lack of facilities. Our objective was to audit our data of carcinoma breast and to analyse the unnecessary axillary lymph node disection (ALND) done due to non-availability of facilities for sentinel node biopsy.

Materials and Methods:

We retrospectively analysed the prospectively maintained patient data base of 152 patients with malignant breast lumps treated at a tertiary care teaching hospital in the department of surgical oncology over a period of 4 years. Present study describes the clinicopathological features like age at presentation, clinical stage at presentation and incidence of regional lymph node involvement and distant metastases and breast conserving surgery (BCS) rate among the breast cancer patients at Sher-I-Kashmir Institute of Medical Sciences, a tertiary care centre, of Srinagar Jammu & Kashmir, India.

Results:

Out of 152 patients, 40 patients were subjected to surgery following NACT and 112 patients underwent upfront surgery. Overall N0 axilla was found in 62 (40%) of patients. Among 40 patients of NACT group, N0 axilla was found in 10 patients (25%), while as 112 patients underwent upfront surgery and N0 axilla was found in 52 (46.42%) out of 112 patients.

Conclusion:

Because of lack of Sentinel Lymph Node biopsy (SNB) facilities in our centre, unnecessary axillary lymph node dissection was performed in 46% of patients. Application of SNB technique in this group of patients thus would have reduced the morbidity associated with axillary lymph node dissection and therefore needs to be incorporated as a part of management of breast cancer patients.

JK-Practitioner2021;26(1):28-33

Introduction

Cancer is one of the most dreaded diseases in the world. Of the 18.1 million new cases diagnosed every year, more than half are from developing countries. According to the latest statistics available, about 10 million people will die annually by the year 2020 due to cancer, and 70% of them from the developing world. The incidence of cancer is rising every year, and this is attributed to the changes in lifestyle and increase in life expectancy [1,2,3].

According to Globocan 2018, total number of new cases of female breast cancer diagnosed are 162468 which comprises 27.7% of all female malignancies. As per data published by Global cancer observatory 2018, the breast cancer has highest age standardised incidence (24.7%) and highest mortality rate (13.4%). India, United States and China collectively accounts for almost one third of the global breast cancer

Author Affiliations

Ab Wahid Mir, Associate Professor,
Shah Naveed, Assistant Professor,
Altaf Gauhar Haji, Former Associate Professor,
Sheikh Zahoor, Associate Professor,
Azhar Jan Batoo, Associate Professor;

Department of Surgical Oncology Sher-I-Kashmir Institute of Medical Sciences, Jammu and Kashmir INDIA

Correspondence
Dr. Ab Wahid Mir
Associate Professor, Department of Surgical Oncology Sher-I-Kashmir Institute of Medical Sciences, Jammu and Kashmir, INDIA.
Email ; mirabwahid@gmail.com
House No.132, Muslimabad Sector 1, Tengpora, Srinagar-190010
Contact No. 91-9469943885

Indexed
Scopus,INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Mir AW, Naveed S, Haji AG, Zahoor S , Batoo AJ.Pattern Of Presentation And Management Of Ca Breast- A Departmental Audit At Regional Cancer Centre Of Kashmir – An Unmet Need Of Sentinel Lymph Node Biopsy (SNB
JK Pract2021;26(1):28-33

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Breast cancer, Lymph node, Metastasis, Breast conserving surgery, Sentinel lymph node biopsy

burden.Breast carcinoma is a serious health problem and is among the major health issues in India. The surgical management of breast carcinoma has evolved tremendously when breast conserving surgery was first described in 1924, which has become a standard surgical procedure in some institutions of advanced countries [4]. It has a relatively early age presentation in our part of the world [5]. India is facing challenging situation due to 11.54% increases in incidence and 13.82% increase in mortality due to breast cancer during 2008–2012 [6,7].

The survey carried out by Indian Council of Medical Research (ICMR) in the metropolitan cities during 1982 to 2005 has shown that incidence of breast cancer has almost doubled [8].

In a study published by Rasool MT et al, carcinoma of the breast was second most common cancer in women in regional cancer centre of Kashmir and comprised of 14.6% of all female malignancies with a median age of 45 years [9]. Sentinel lymph node biopsy technique requires combination of dyes (isosulphan blue, patent blue violet) and Tc99 labelled radiolabelled Sulphur colloid with the use of hand held gamma probe. As the nuclear medicine facilities and dyes are not available in all the centres of India, Methylene blue can be used an alternative with acceptable identification rate of Sentinel lymph node in low resource centres [10]. However unfortunately SNB was not performed in our patients.

Material and Methods

It's a retrospective study of prospectively maintained patient data base of 152 patients with malignant breast lumps treated at a tertiary care teaching hospital in the department of surgical oncology over a period of 4 years. A total of 182 patients were operated, but records of only 152 patients could be retrieved. All patients were admitted through outpatient department and were thoroughly examined and investigated. Treatment offered was based on triple assessment and ranged from breast conserving surgery (BCS) to toilet mastectomy depending upon the stage of disease. Core biopsy was performed in all patients to confirm histopathology and for Immunohistochemistry (IHC). Patients with early breast cancer were subjected to upfront surgery in the form of BCS or modified radical mastectomy as per indications and or wishes of the patients. Patients with locally advanced breast cancer were planned for neoadjuvant chemotherapy (NACT) followed by surgery. The group of patients who received NACT and opted for BCS were subjected to surgery before completion of NACT i.e. after four cycles of chemotherapy with continuous monitoring of lump in order to avoid complete resolution of the lump, as facilities of clip placement was not available at our centre. All the patients underwent axillary lymph node dissection (ALND). The extent of ALND was up to discretion of operating surgeon depending on operative findings of axilla. SNB could not be applied in view of non-availability of the facility. All the patients who underwent BCS received EBRT to breast. The variables studied were recorded on a proforma and analysed on statistical software.

RESULTS

Youngest patient of the series was aged 21 years whereas the oldest was aged 81 years. Median age of our patients is 47 years. T1 lesion was present in 20 patients (13.15%), T2 was the most common T stage present in 92 patients (60.52%), T3 was present in 17 patients (11%) and T4 was present in 23 patients (15.13%). Majority of the cases belonged to N0 (40.70%) overall, 42 patients (27.63%) had N1, 35 patients (23.02%) had N2 and 13 patients (8.55%) had N3 nodal disease. Stage wise distribution of cases reflected that Stage IIA was the most common stage at presentation in 43 patients (28.28%) followed by Stage IIB 28 patients (18.42%), Stage IA had 15 patients (9.86%) , Stage IIIA had 25 patients (16.44%), Stage IIIB had 24 patients (15.78%) and Stage IIIC had 12 patients (7.89%)(Table 1). 5(3.28%) patients had metastases out of which all 5 patients had bone metastases at the time of diagnosis and 2 of them had liver metastases. Surprisingly none of our patient was diagnosed to have stage 0 disease. Among BCS group two patients had positive margin, one with focal positivity and another diffuse margin positivity. Left breast was involved in 80 (52.63%) and right breast in 72(47.36%) patients. Lymph node yield in early breast cancer was 14.39 per patient and 10.33 per patient following NACT. Out of 152 patients,40 patients were subjected to surgery following NACT and 112 patients underwent upfront surgery. Overall N0 axilla was found in 62 (40%) of patients. Among 40 patients of NACT group, N0 axilla was found in 10 patients (25%), while as 52 out of 112 patients who underwent upfront surgery, N0 axilla was found in 52 (46.42%) of patients. Most common histology was infiltrating ductal carcinoma (94.7%) (Table 2). 112 (74%) patients underwent modified radical mastectomy, 35 (23%) patients underwent breast conserving surgery and 5 patients underwent toilet mastectomy. All patients were subjected to Axillary lymph node dissection (ALND) because of lack of facility for Sentinel lymph node biopsy (SNB). Luminal A was the most common molecular subtype, comprising of 87 patients (57%) followed by triple

negative (27 patients 17.70%), Luminal B and Her 2 enriched each with 19 patients (12.5%) (Figure1). Histological grade I was found in 20(13.15%), grade II in 56(36.84%), grade III 41 (26.97%) of patients. Histological grading was not available in 35(23.02%) of patients. Majority of patients had LVI positive disease (53.2%) (Table 3).

Table 1- Depicting Laterality, TNM staging, Surgeries and Grade of Tumour

Characteristic	% (n)
Laterality	
Right	47.3(72)
Left	52.6(80)
TNM	
T1	13.1(20)
T2	60.5(92)
T3	11(17)
T4	15.1(23)
N0	40.7(60)
N1	27.6(42)
N2	23(35)
N3	8.5(13)
M1	3.2(5)
SURGERIES	
MRM	74(112)
BCS	23(35)
Toilet Mastectomy	3.2(5)
GRADE	
I	13.5(20)
II	36.8(56)
III	26.9(41)
NA	23(35)

Table 2- Depicting Histopathology of Breast Tumours

Histology	% (n)
Infiltrating Ductal Ca	94.7(144)
Infiltrating Lobular Ca	0.03 (5)
Medullary Ca	0.01(2)
Mucinous Ca	0.006(1)

Table 3: Depicting LVI and PNI

LVI	**%(n)**
+ve	53.2(81)
-ve	27.6(42)
LVI	**%(n)**
NA	29(19.07%)
PNI	
+ve	18.4(28)
-ve	42.1(64)
NA	39.4(60)

DISCUSSION

Breast cancer still continues to be a major killer of women all around the world. The incidence and pattern of this disease differ significantly between developed and underdeveloped countries [11,12].

In our study the median age of patients at presentation was 47 years. Raina V et al studied the breast cancer clinical profile in northern India and reported a median age of presentation as 47 years. They further showed that incidence rate in India begins to rise in early thirties of age and peaks at 50-64 years of age. They compared it with data from United States, where peak incidence rate is at age of more than 75 years. This lower age at the time of diagnosis is reported for other cancers also in India, the underlying reasons are not well understood but it is supposed that there is under-diagnosis as well as underreporting of cases in the elderly people [13-15]. Chopra B et al in a study found that there were two peaks in the age group at the time of diagnosis of breast cancer i.e. 41-50 years age group and 51-60 years age group [16].

The peak age group of 41-50 years reflects that the disease affects younger age group in Indian population in comparison with the western world. They also highlighted that data from Delhi in India during 2001 to 2003 as per National Program of Cancer Registry of the Indian Council of Medical Research which showed that among 3777 cases of breast cancer analysed, 44.6% cases were less than 54 years of age. Goel et al and Saxena et al have also reported similar results which further reinforce the fact that there is a rising incidence of breast cancer in younger age groups in the urban population of India [17-20]. Raina V et al study has reported that 45% patients presented with Stages III and IV of breast cancer disease. Similarly, another study found that 45.7% patients presented in Stages III and IV breast cancer [21].

Stage Distribution

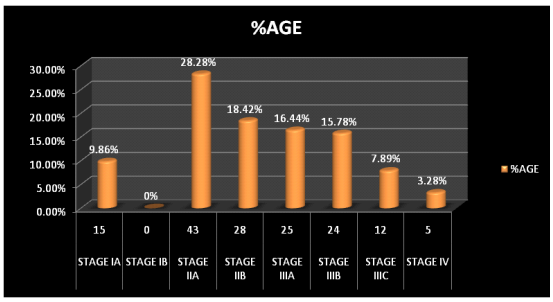


Figure 1

N Group

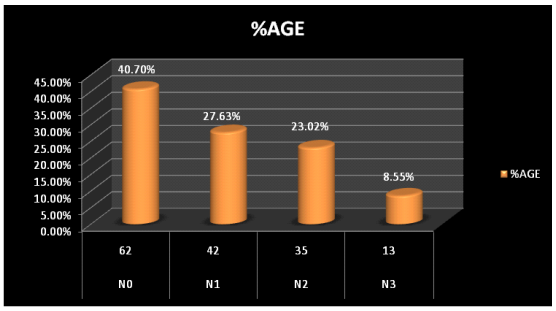


Figure 2

Nodal Yield

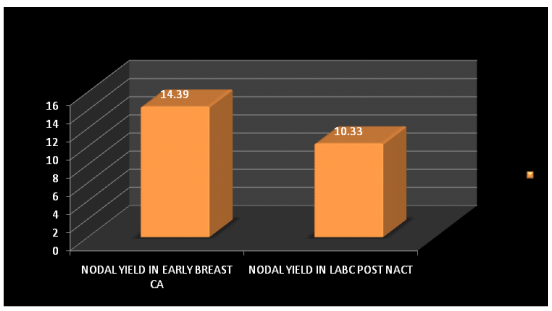


Figure 3

Molecular Sub-Types

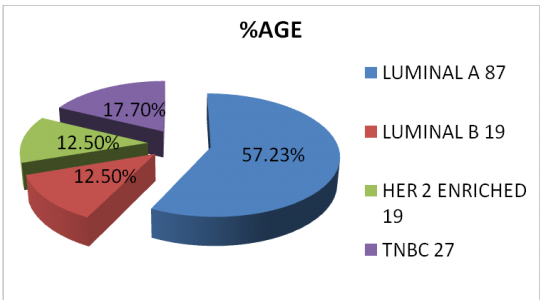


Figure 4

But in our institute, Stage IIA was the most common stage at presentation in 43 patients (28.28%) followed by Stage IIB in 28 patients (18.42%). In our study 25 patients (16.44%) had Stage IIIA and 24 patients (15.78%) had Stage IIIB. Saxena et al in their study observed that Stage IIIB was the most common stage at presentation i.e. in 36.1% cases. Breast conserving rate was low (23%) as compared to western countries in present era where the BCS rate is more than 70%. In a large study conducted by Carlos A et al, a western study, BCS was carried out in 73.3% of patients [22]. However, our BCS rate is comparable to rest of Indian parts where BCS rate ranges from 38% to 46 % [23]. In our study left breast was involved in 80 (52.63%) and right breast in 72(47.36%) patients. The average lymph node yield was reported to be 14.39 per patient in patients subjected to upfront surgery and 10.33 per patient in patients subjected to axillary lymph node dissection following neoadjuvant chemotherapy. Kiricuta CI and Tausch J recommended at least 10 lymph nodes for pathological evaluation in a study of 1446 complete axillary dissections in patients with carcinoma breast [24]. Although observations suggest that nodal yield is low following NACT, but there is no clear data whether NACT influences the nodal yield [25]. However, in our study the lymph node yield following systemic therapy is 10.33. 10 out of 40 patients who underwent surgery following NACT have pathological complete response (cPR). A study conducted by H Narendra and colleagues found cPR in 36.5% of their patients [26]. In our study Luminal A was the most common molecular subtype (57%) followed by Triple negative comprising of 17.70%. S Hassan and colleagues found Luminal A in 75% and triple negative in 17.2% of their patients [23].

SNB is standard of care for pathological staging of cN0 axilla in patients with early breast cancers with low morbidity and without compromising the oncological outcome [27]. The technique could not be performed by us in view of lack of facilities.

Limitations of our study include retrospective hospital-based study with small sample size. So, the findings cannot be generalized over a diverse geographical area. Furthermore, ALND has been performed unnecessarily in at least 46% of patients because of non-availability of SNB facilities which could have been avoided by use of SNB technique.

CONCLUSION

Majority of patients in our part of Asia present with Stage II breast carcinoma. Advanced breast disease is common in younger patients belonging to underprivileged and remote rural areas. The age group in majority of the patients was younger as

compared to Western world and this finding is in line with data from India and other Asian regions. BCS rate is low in our part of the world. Axillary lymph node dissection is being performed unnecessarily in majority of patients because of non-availability of SNB facilities. SNB should be incorporated in to routine practice as and when feasible. Proper counselling regarding BCS is needed. Every woman with operable breast cancer should be offered option of breast conservation if there are no standard contraindications.

Declaration
Funding: Nil
Conflict of interest: Nil
Availability of data: Hospital data with permission
Authors Contribution: All the authors have contributed in the research article
Informed Consent: Yes

References:

1. Nanda KA, Gupta PC, Gangadhar P, Visweshwara RN. Development of an atlas of cancer in India. First all India report: 2001-2002. India: National Cancer Registry Program (ICMR) Bangalorem2004
2. Stewart BW, Kleihues P. \World cancer report. Lyon: WHO International Agency for Research on Cancer; 2003.
3. Gaur DS, Kishore S, Harsh M, Kusum A, Bansal R. Pattern of cancers amongst patients attending Himalayan Institute of Medical Sciences, Dehradun. Indian J PatholMicrobiol 2006;49:193-8.
4. Keynes G. Radium treatment of primary carcinoma of the breast. Lancet. 1928;2:108).
5. Almas A. Clinical profile of carcinoma breast cases at a tertiary care hospital IntSurg J. 2017 Mar;4(3):913-915.
6. Ferlay J, Soerjomataram I, Dikshit R et al. Cancer incidence and mortality worldwide: sources, methods and major pat- terns in GLOBOCAN 2012. Int J Cancer 2015; 136: E359–386.
7. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer 2010; 127: 2893–2917.
8. Ali I ,Wani WA , Saleem K , Cancer scenario in India with future perspectives . Cancer Therapy 2011; 8: 56-70.
9. Rasool MT, Lone MM, Wani ML, Afroz F, Zaffar S, Mohib-ulHaq M. Cancer in Kashmir, India: Burden and pattern of disease. J Can Res Ther 2012;8:243-246
10. V Seenu, SuhaniSuhani, Anurag Srivastava, RajinderParshad, Sandeep Mathur, RakeshKuma. Optimozation of sentinel lymph node identification techniques in the indain setting: A randomized clinical trial, 2019,56 (2),114-118.
11. Jakesz R. Breast Cancer in Developing Countries: Challenges for Multidisciplinary Care. Breast Care 2008: 3: 4-5.
12. Agarwal G, Pardeep PV, Aggarwal V, Yip CH, Cheung PS. Spectrum of breast cancer in Asian women. World J Surg 2007; 31: 1031-1040.
13. Raina V, Bhutani M, Bedi R, Sharma A, Deo SV, Shukla NK, Mohanti BK, Rath GK. Clinical features and prognostic factors of early breast cancer at a major cancer center in North India. Indian J Cancer. 2005; 42:40-45.
14. National cancer registry programme. Consolidated report of the population based cancer registries1990- 1996. New Delhi: Indian Council of Medical Research; 2001.
15. Bhutani M, Vora A, Kumar L, Kochupillai V. Lympho-hemopoietic malignancies in India. Med Oncol. 2002; 19:141-150.
16. Chopra B, Kaur V, Singh K, Verma M, Singh S, Singh A. Age shift: breast cancer is occurring in younger age groups - is it true? Clin Cancer Investig J. 2014;3:526-529.
17. Ferlay J, Bray F, Pisani P. GLOBOCAN 2000: Cancer Incidence, Mortality and Prevalence Worldwide, Version 1.0. IARC Cancer Base No. 5. Lyon: IARC; 2001.
18. National cancer registry programme (ICMR). consolidated report of population-based cancer registries 2001-2004. Individual registry data, 2001- 2003;161.
19. Saxena S, Rekhi B, Bansal A, Bagga A, Chintamani, Murthy NS. Clinico-morphological patterns of breast cancer including family history in a New Delhi hospital, India - a cross-sectional study. World J SurgOncol. 2005; 3:67.
20. Goel A, Bhan CM, Srivastava KN. Five year clinico pathological study of breast cancer. Indian J Med Sci. 2003;57:347-349.
21. Kakarala M, Rozek L, Cote M, Liyanage S, Brenner DE. Breast cancer histology and receptor status characterization in Asian Indian and Pakistani women in the U.S. - a seer analysis. BMC Cancer. 2010;10:191. future perspectives. Cancer Therapy 2011; 1-8
22. Carlos A Garcia-Etienne 1, Mariano Tomatis, JoergHeil, Kay Friedrichs, Rolf Kreienberg, Andreas Denk, Marion Kiechle, Fatemeh Lorenz-Salehi, Rainer Kimmig, Günter Emons, Mahmoud Danaei, Volker Heyl,

UweHeindrichs, Christoph J Rageth, Wolfgang Janni, LorenzaMarotti, Marco Rosselli del Turco, Antonio Ponti, eusomaDB Working Group Mastectomy Trends for Early-Stage Breast Cancer: A Report From the EUSOMA Multi-Institutional European Database. Eur J Cancer. 2012 Sep;48(13):1947-1956

23. S hassan A, S P Somashekher,Arun Kumar N. Rate of Breast-Conserving Surgery vs Mastectomy in Breast Cancer: a Tertiary Care Centre Experience from South India. Indian Journal of Surgical oncology,10(1),2019, 72-76.
24. Kiricuta CI, Tausch J. A mathematical model of axillary lymph node involvement based on 1446 complete axillary lymph node dissection in patients with breast carcinoma.; Cancer, 1992,69,2496-2501
25. Erbes, Thalia&Orlowska-Volk, Marzenna & zur Hausen, Axel &Rücker, Gerta& Mayer, Sebastian & Voigt, Matthias &Farthmann, Juliane&Iborra, Severine&Hirschfeld, Marc & Meyer, Philipp &Gitsch, Gerald &Stickeler, Elmar. (2014). Neoadjuvant chemotherapy in breast cancer significantly reduces number of yielded lymph nodes by axillary dissection. BMC cancer 2014. 14, (4),14-24.
26. H Narendra, J Thomas, S Ray, DJ Fernandes An analysis of response to neo-adjuvant chemotherapy in patients with locally advanced breast cancer with emphasis on pathological complete response. Indian Journal Of Cancer 2014,51(4);587-592.
27. Mansel RE, Fallowfield L, Kissin M, Goyal A, Newcombe RG, Dixon JM, et al. Randomized multicenter trial of sentinel node biopsy versus standard axillary treatment in operable breast cancer: the ALMANAC Trial. J Natl Cancer Inst 2006;98:599-609.

Acknowledgments:
The authors thank Mr Mohammad Haris Mir for his assistance in formatting and processing of the manuscript.

Original article

PLACENTA ACCRETA ASSOCIATED MORBIDITIES - DOES EARLY DIAGNOSIS IMPROVE MATERNAL AND PERINATAL OUTCOMES? A 5 YEAR STUDY

Poonam Yadav, Neelam Singh,Meeta Gupta, Mohita Agarwal

Abstract

Objective:

To study the risk factors of placenta accreta and comparison of maternal and neonatal outcomes in cases with and without predelivery diagnosis of placenta accreta.

Materials and Methods:

A retrospective study was performed in patients diagnosed as placenta accreta at S.N. Medical college, Agra between January 2014 to December 2019.Cases were divided into those with predelivery diagnosis (non emergent) and without pre delivery diagnosis (emergent) of placenta accreta. Non emergent group was scheduled for planned elective hysterectomy after steroid administration at 34-36 weeks. Risk factors of placenta accreta were studied and comparison of maternal and neonatal outcomes in both the groups was done.

Results:

During the study period between January 2014 and December 2019, 26 women with histopathologically confirmed placenta accreta were identified, out of them 18 were diagnosed before delivery and 8 were diagnosed during surgery. Various risk factors of placenta accreta were identified out of which multiparity, history of previous caesarean section and presence of placenta previa in the present pregnancy were found to be important risk factors. Comparing non emergent and emergent group, there was less blood loss during surgery and lesser units of packed red blood cells and fresh frozen plasma (FFP) transfusion was required in non emergent group. There was no statistically significant difference in neonatal outcomes in both the groups.

Conclusion:

Multiparity, previous caesarean section and placenta previa in present pregnancy are important risk factors of placenta accreta. Planned delivery at 34-36 weeks with multidisciplinary approach is associated with significant reduction in maternal morbidity without increasing neonatal morbidity.

JK-Practitioner2021;26(1): 34-37

Introduction

Placenta accreta spectrum is defined as abnormal placental invasion into the uterus. This include placenta accreta when chorionic villi are adhered to myometrium, increta when villi invades the myometrium and percreta when villi reaches serosa and adjacent organs. The incidence of placenta accreta has been increasing over the years.

The most important risk factors for placenta accreta are previous caesarean section and placenta previa. Placenta previa alone is associated with a 5-10% risk of accreta. Risk of placenta accreta increases with increasing number of caesarean sections. It is 0.2% for the first, 0.3% for the second,0.6% for third,2.1% with the fourth and is up to 6.7% with the sixth or more caesarean section. Risk of placenta accreta in placenta previa with prior 1,2,3,4 and 5 or more caesarean delivery is 3.3%,11%,40%,61% and 67% respectively.[1] Other risk factors include advance maternal age, smoking, prior uterine surgery or curettage or any

Author Affiliations

Poonam Yadav, Associate Professor, **Neelam Singh**, Senior Resident, **Mohita Agarwal**, Associate Professor:
Department of OBG, SN Medical College, Agra
Meeta Gupta, Associate Professor
Department of OBG, ASCOMS, Jammu

Correspondence
Dr. Mohita Agarwal, Associate Professor, Department of OBG, SN Medical College, Agra
Mobile: 90275-22672
Email:bestmolly@gmail.com

Indexed

Scopus,INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Yadav P, Singh N ,Gupta M, Agarwal M.Placenta Accreta Associated Morbidities - Does Early Diagnosis Improve Maternal And Perinatal Outcomes? A 5 Year Study JK Pract 2021;26(1):34-37

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words: :
Placenta accreta spectrum, Morbidly adherent placenta

uterine intervention, previous uterine artery embolization, post-partum endometritis, uterine pathology, caesarean scar pregnancy and IVF pregnancies.

Prenatal diagnosis of placenta accreta can be done by USG with colour Doppler and MRI.MRI is required especially in cases where placenta is posterior , to know the depth of invasion, parametrial extension and in suspicious cases of placenta accreta on USG. Definitive diagnosis of placenta accreta is made by pathological specimen obtained after hysterectomy upon visualisation of chorionic villi embedded in myometrium with absence of decidual layers between them. Elective caesarean delivery and hysterectomy at 34 weeks after antenatal steroid is the gold standard treatment of placenta accreta. Other treatment options to preserve the uterus include expectant management, embolization of uterine arteries, methotrexate therapy and uterus preserving surgeries.

Materials and Methods:

It was a prospective study conducted in Department of Obstetrics and Gynaecology of S.N. Medical College, Agra. All cases were analysed and outcomes were evaluated. Primary outcome was preoperative and post-operative morbidity and mortality in elective versus emergency LSCS. Secondary outcomes were any identifiable risk factor , amount of blood loss and duration of hospital stay.

Cases were divided into those with (n=18) and without (n=8) diagnosis of placenta accreta made before delivery. Pre delivery diagnosis of placenta accreta was confirmed by USG with Doppler and MRI in cases where USG was suspicious. Other group consisted of cases of placenta accreta diagnosed per-operatively during emergency caesarean section in unbooked patients.

Once the diagnosis of placenta accreta is confirmed, all patients were offered planned caesarean hysterectomy with prior ureteric stenting at 34-35 weeks of gestation after steroid cover. All cases were managed by a multidisciplinary team consisting of senior obstetrician, neonatologist, anaesthetist and urosurgeon. Data was collected about the incidence and risk factors of placenta accreta and maternal and neonatal complications associated with placenta accreta. Statistical analysis was performed using "student t test" and "chi square test."

Results:

During the study period between January 2014 and December 2019 ,26 women with histopathologically confirmed placenta accreta were delivered. Our study investigated risk factors of placenta accreta and found that the risk of placenta accreta was increased in multipara women, women with placenta previa in this pregnancy and in women with previous caesarean delivery. Table 1 shows that out of 26 patients diagnosed with placenta acreta,24 patients had history of previous uterine surgery, in which 22 patients had previous caesarean delivery and two patients had history of D&C done previously. Two patients diagnosed with placenta accreta did not have any history of uterine surgery and one patient had history of manual removal of placenta in previous pregnancy.

Table 1. Risk Factors of Placenta Accreta

Risk factors	Number	Percentage (%)
Age		
<30	16	61.54
>30	10	38.46
Socio economic status (Kuppuswamy's socioeconomic status scale) low, medium, high	6 15 5	23.08 57.69 19.23
Parity		
primipara	-	
multipara	26	100
Pregnancy induced hypertension or pre eclampsia		
Yes	6	23.08
No	20	76.92
Prior uterine surgery		
None	2	7.69
Myomectomy	-	
Septum removal	-	
D & C	2	7.69
Caesarean delivery	22	86.62
1. One	11	42.31
2. Two	10	38.46
3. Three or more	1	3.85
Previous history of MRP	1	3.85
Previous caesarean uterine incision type	24	92.31
LSCS	2	7.69
Classical		
History of placenta previa in this pregnancy	15	57.69
Interval between LMP and last caesarean section	2	7.69
< 12 Months	10	38.46
12-24 Months	14	53.85
> 24 Months		

Pre operative ureteric stenting was done in all

patients with pre delivery diagnosis of placenta accreta. Women with predelivery diagnosis of placenta accreta had clinically significant shorter hospital stay, less amount of blood loss during surgery, received less units of packed red blood cells and FFP. Out of 18 women with predelivery diagnosis of placenta accreta, three patients had bladder injury during surgery whereas two patients had bladder injury and one had ureteric injury during surgery in patients without pre delivery diagnosis of placenta accreta. Two patients in both the groups required bilateral internal artery ligation to control bleeding. One patient without predelivery diagnosis of placenta acreta expired on day two due to DIC in ICU whereas all patients with pre delivery diagnosis were safely discharged (Table 2).

Table 2. Comparison of maternal outcomes between patients with predelivery diagnosis (non emergent) and those without predelivery diagnosis(emergent) of placenta accreta.

Maternal outcome	Predelivery diagnosis (non emergent)	Without predelivery diagnosis(emergent)	P value
Gestational age at time of caesarean section (weeks)	35.76±1.46	36.88±0.98	0.605
Estimated blood loss in litres	1.12±0.38	1.86±0.32	0.0001
Operative time (minutes)	59.17±6.91	55.00±5.35	0.1438
Unit of PRBC transfused	2.44±0.51	4.50±0.53	0.0001
Unit of FFP transfused	2.50±0.51	4.50±0.53	0.0001
Maternal ICU admission	10	6	0.3565
Maternal hospital stay(in days)	4.50±0.51	9.50±0.53	0.0001
Surgical complications Bladder injury Ureter injury Intestine injury	 3 - -	 2 1 -	0.6257
Internal iliac artery ligation	2	2	0.3743
Maternal death	-	1	

Compared to those without predelivery diagnosis of placenta accrete, those with predelivery diagnosis had no significant difference in birth weight of new born,neonatal admission to NICU, NICU length of stay, frequency of respiratory distress syndrome and need for intubation. Out of eight mothers without predelivery diagnosis of placenta acreta, four newborn had NICU admission in which one developed respiratory distress and was intubated. Out of 18 women with predelivery diagnosis of placenta acreta, eight newborns (44%)had NICU admission and two of them developed respiratory distress and were intubated (Table 3).

Table 3. Comparison of neonatal outcomes between patients with predelivery diagnosis(non emergent) and those without predelivery diagnosis(emergent) of placenta acreta.

Neonatal outcome	Predelivery diagnosis (non emergent)	Without predelivery diagnosis(emergent)	P value
Birth weight (Kg)	2.07±0.09	2.18±0.20	0.0614
NICU Admission	8	4	0.7969
NICU length of stay(in days)	5.17±0.86	4.54±0.73	0.0846
Frequency of RDS	2	1	0.9200
Need for intubation	2	1	0.9200

Discussion:

The incidence of placenta accreta has been increasing in the last few years due to increase rate of caesarean section. It is a major contributor to maternal morbidity and mortality. The main focus of the present study was to compare the maternal and neonatal outcome in women with and without pre delivery diagnosis of placenta accreta. In our study, only cases with pathologically confirmed placenta accreta were included. We found that all patients were multiparous and majority had placenta previa in this pregnancy. In addition majority of patient had history of previous caesarean section.

Women with pre delivery diagnosis of placenta accreta were scheduled for elective surgery at 34 -35 weeks to decrease the morbidity associated with emergency hysterectomy. This practise did not show any increase in neonatal morbidity however maternal morbidity was significantly reduced. The adverse outcome most commonly associated with placenta percreta were increased maternal haemorrhage and bladder injury. One patient without pre-delivery diagnosis of placenta accreta expired on day two . The main complication associated with placenta accreta is major obstetric haemorrhage leading to coagulopathy, multi system organ failure and death.[2-9]

Similarly many retrospective cohort studies of placenta accreta have documented that woman with placenta accreta should have their delivery in a centre of excellence with a multidisciplinary team to reduce large volume blood transfusion and ICU admission without having any adverse effect on neonatal outcome[10].

Other studies have also demonstrated association between placenta accreta and various risk factors. Wu S et al, Miller DA et al and Usta IM et al in their studies found an increased risk of placenta accreta in women with history of previous caesarean delivery[11]. Al-Serehi A et al found increased risk of placenta accreta in women with history of previous uterine surgery[12] in their study. Hung TH et al in their study found increased risk of placenta accreta in women with placenta previa

diagnosed in present pregnancy. Smoking, hypertensive disorders, IVF pregnancy, advanced maternal age have also been suggested as risk factor of placenta accreta but no such association was found in our study.

Bowman ZS et al and Rac MW et al in their studies concluded that optimal timing of delivery of the women with placenta accreta ranges from 34 -36 weeks to 36-38 weeks. As complications related to blood loss are lower in non-emergent compared to emergent deliveries, scheduling of surgical intervention at 34-35 weeks after administration of steroid for lung maturity demonstrated a reduction in emergency deliveries from 23-64% with no adverse effects on neonatal outcomes. Pre operative optimization of haemoglobin is very necessary in all patients with placenta accreta. The incidence of unintentional urinary tract injury at peripartum hysterectomy was higher than rates of complication in hysterectomies for other gynaecological indications. Opening the retroperitoneal space and visualising the ureters and preoperative placement of ureteric stent can reduce the risk of urinary tract injury.

The role of bilateral internal iliac artery ligation at the time of hysterectomy for placenta acreta is currently unclear.

During planned caesarean hysterectomy in the absence of spontaneous placental separation the placenta should be left in situ to minimize blood loss and uterotonics should be avoided.

Total hysterectomy with placenta in situ is preferred over subtotal hysterectomy in cases of placenta accreta.

Conclusion:

Based on the results of our study all women at risk for placenta accreta (placenta previa, previous uterine surgeries) should undergo careful imaging to assess for the presence of placenta previa as pre-natal diagnosis of placenta accreta is very important in reducing the maternal morbidity associated placenta previa. These women should have their delivery scheduled in a centre of excellence with a dedicated multidisciplinary team.

Our study concluded that with the optimum antenatal care and early identification of cases at high risk of placenta accreta would contribute effectively in improving the diagnosis and thereby lowering the maternal and perinatal morbidity and mortality. Planned caesarean delivery at a tertiary centre with multidisciplinary approach is imperative for an improved maternal outcome.

Reference:

1. Silver RM, Landon MB, Rouse DJ, Leveno KJ, Spong CY, et al. Maternal morbidity associated with multiple repeat cesarean deliveries.Journal of Obstetrics and gynecology .2006;107: 1226–1232.
2. Walker MG, Allen L, Windrim RC, et al. Multidisciplinary management of invasive placenta previa. J Obstet Gynaecol Can. 2013; 35: 417–425.
3. Shamshirsaz AA, Fox KA, Salmanian B, et al. Maternal morbidity in patients with morbidly adherent placenta treated with and without a standardized multidisciplinary approach. Am J Obstet Gynecol. 2015; 212: 218.e1–218.e9.
4. Eller AG, Porter TF, Soisson P, Silve RM. Optimal management strategies for placenta accreta. BJOG. 2009; 116: 648–654.
5. Warshak CR, Ramos GA, Eskander R, et al. Effect of predelivery diagnosis in 99 consecutive cases of placenta accreta. Obstet Gynecol. 2010; 115: 65–69.
6. Wright JD, Pri-Paz S, Herzog TJ, et al. Predictors of massive blood loss in women with placenta accreta. Am J Obstet Gynecol. 2011; 205: 38.e1–38.e6.
7. Seoud MA, Nasr R, Berjawi GA, et al. Placenta accreta: Elective versus emergent delivery as a major predictor of blood loss. J Neonatal Perinatal Med. 2017; 10: 9–15.
8. Eller AG, Bennett MA, Sharshiner M, et al. Maternal morbidity in cases of placenta accreta managed by a multidisciplinary care team compared with standard obstetric care. Obstet Gynecol. 2011; 117: 331–337.
9. Norris BL, Everaert W, Posma E, et al. The urologist's role in multidisciplinary management of placenta percreta. BJU Int. 2016; 117: 961–965.
10. Smulian JC, Pascual AL, Hesham H, et al. Invasive placental disease: The impact of a multi-disciplinary team approach to management. J Matern Fetal Neonatal Med. 2017; 30: 1423–1427
11. Usta IM, Hobeika EM, Musa AA, Gabriel GE, Nassar AH .Placenta previa-accreta: risk factors and complications. American journal of obstetrics and gynecology.2005; 193: 1045–1049.
12. Al-Serehi A, Mhoyan A, Brown M, Benirschke K, Hull A, et al. Placenta accreta: an association with fibroids and Asherman syndrome. Journal of ultrasound in medicine : official journal of the American Institute of Ultrasound in Medicine.2008; 27: 1623–1628.

Original article

CONTINUING MENACE OF RIFAMPICIN RESISTANT TUBERCULOSIS IN RIMS HOSPITAL, IMPHAL, MANIPUR

Ningthoujam Priyolakshmi Devi, Th. Nabakumar Singh, H. Rebachandra Singh, W. Sashi Singh, Y. Joyshankar

Abstract

Background:
India has set an ambitious goal of tuberculosis elimination by 2025 which is going to be limited by a large burden of multidrug resistant tuberculosis (MDR-TB). Resistance to rifampicin is a surrogate marker of MDR-TB. Detection of rpoB gene mutation by Cartridge Based Nucleic Acid Amplification Test (CB-NAAT) is used to detect rifampicin resistance.

Objective:
To determine the burden of rifampicin resistant tuberculosis in Regional Institute of Medical Sciences (RIMS) Hospital, Imphal, a tertiary care hospital in Manipur.

Method:
The study was a cross sectional study conducted on 100 cases of tuberculosis between the age group of 14-80 years visiting Regional Institute of Medical Sciences (RIMS) Hospital, Imphal, a tertiary care centre from September 2018 to December 2019. Samples were subjected to Ziehl-Neelsen (ZN) stain and smear positive samples were then sent for CB-NAAT analysis at Intermediate Reference Laboratory (IRL), Lamphel, Imphal and a part of it was inoculated in Lowenstein Jensen (LJ) medium for culture.

Results:
Of 100 samples (M=71, F=29), 42 were of grade 1+, 29 were grade 2+ and 29 were grade 3+ on ZN staining. 87(M=64, F=23) showed positive culture growth. Maximum cases of tuberculosis as well as rifampicin resistance were seen in the age group of 41-50 years. 5 males (7%) and 2 females (6.9%) were resistant to rifampicin respectively. 6(6.4%) of newly diagnosed and 1(16.7%) of old cases were rifampicin resistant tuberculosis (RR-TB). The total number of rifampicin resistance in our study was 7(7%).

Conclusion:
Although MDR-TB/RR-TB is emerging as a significant threat to tuberculosis control, limited data is available. Hence, the present research work is undertaken to highlight the continuing menace of rifampicin resistant tuberculosis in RIMS Hospital, a tertiary care centre in Manipur. In our study, 7% rifampicin resistance was observed, which is significantly high. This indicates the importance of strengthening the awareness programmes, establishing early diagnosis and administration of correct and prompt treatment.

JK-Practitioner2021;26(1):38-43

Introduction

Tuberculosis (TB), caused by Mycobacterium tuberculosis, is among the oldest diseases known to humanity and one of the top ten causes of death worldwide.[1] It is transmitted from person to person via droplet from respiratory tract of people with the active pulmonary disease. Even two decades after introduction of directly observed treatment, short-course (DOTS) strategy, it still is a major cause of morbidity and mortality worldwide.[2]

Author Affiliations

Ningthoujam Priyolakshmi Devi, Post graduate trainee,
Th. Nabakumar Singh, MD, Associate Professor,
H. Rebachandra Singh, MD, Professor,

Department of Microbiology, Regional Institute of Medical Sciences (RIMS) , Imphal, Manipur

W. Shashi Singh, MD, Director, STDC/IRL. **Y. Joyshankar**, MSc (Medical Microbiology), Microbiologist IRL,

Research and Development Wing , Lamphel, Imphal West , Health Directorate, Govt. of Manipur

Correspondence
Dr Th. Nabakumar Singh, Associate Professor, Department of Microbiology, RIMS, Imphal, Manipur. Email: nabakr@rediffmail.com

Indexed
Scopus,INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Devi NP, Singh Th. N, Singh HR , Singh WS, Joyshankar Y Continuing Menace Of Rifampicin Resistant Tuberculosis In Rims Hospital, Imphal, Manipur .JK Pract 2021;26(1):38-43
Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Tuberculosis, RR-TB, CB-NAAT, rpoB gene

Multi drug resistant tuberculosis (MDR-TB) is a form of tuberculosis caused by the organisms that do not respond to, at least isoniazid and rifampicin. MDR-TB arises from a mixture of physician error and patient non-compliance during the treatment of a susceptible TB.[3] Rifampicin and isoniazid remain the two most important drugs for treatment of tuberculosis. Resistance to either drug poses a serious impediment to successful therapy.[4] Resistance in about 95% of rifampicin resistant isolates is due to mutations in 69-bp region of the rpo B gene. This makes it a good target for molecular genotypic diagnostic methods.[5] Although 40 distinct point mutations and in-frame insertions and deletions in rpo B have been identified, point mutations in two codons, those coding for Ser_{531} and His_{526}, are seen in almost 70% of rifampicin resistant clinical isolates, with Ser531-to-Leu (TCG-to-TGG) mutations being the most common.[6] Resistance to rifampicin is a surrogate marker of MDR-TB which is detected by using CB-NAAT based on detection of rpo B gene mutation.[7]

Manipur, a north-eastern state of India has been having high prevalence of MDR-TB. In 2017 the prevalence was 11.2% and 7.9% in 2018 contributing to the high burden of MDR-TB of the country and creating a hindrance to the TB control activities.[8] This high burden of DR-TB should be managed based on the laboratory confirmation with a clear understanding of the drug resistance and its sensitivity.

The X pert-MTB/Rif assay (Cepheid) is one of the most frequently used molecular screening test for TB and MDR-TB in both resource-poor and resource rich countries.[9] It had been shown that the X pert-MTB/Rif assay detected pulmonary tuberculosis in all TB patients, including 90% of smear negative patient with a high sensitivity of 97%.[10] Cartridge Based Nucleic Acid Amplification Test (CB-NAAT)/Gene X pert, endorsed by the WHO for use in endemic countries, is an automated, semi-quantitative real time PCR assay designed for the rapid and simultaneous detection of Mycobacterium tuberculosis and rifampicin resistance within 2 hours.[11]

Aims and objectives

To determine the burden of rifampicin resistant tuberculosis in Regional Institute of Medical Sciences (RIMS) Hospital, Imphal, a tertiary care hospital in Manipur.

Materials and methods

The study was a cross sectional study conducted in the Department of Microbiology and Intermediate Reference Laboratory (IRL), Lamphel, Imphal. The samples were collected during September 2018 to December 2019.

Subjects aged between 14-80 years old, who were contacts of active tuberculosis, known drug resistant tuberculosis cases, failure to treatment, HIV-TB co-infected cases at diagnosis, relapse and defaulter were included. In the data analysis, newly diagnosed cases were considered as new cases whereas failure to treatment, relapse and defaulters were grouped under old cases.

Paediatric age group, patients already diagnosed with MDR/XDR-TB by means of CB-NAAT or line probe assay, active or suspected malignancy, terminal disease with poor prognosis were excluded from the study.

The samples were collected from participants suspected of tuberculosis visiting the Departments of Respiratory and Chest Medicine, General Medicine, RIMS hospital, Imphal, fulfilling the inclusion criteria and were processed immediately at the Mycobacteriology laboratory, Department of Microbiology, RIMS, Imphal for direct microscopic examination by Ziehl Neelsen (ZN) stain and culture in Lowenstein Jensen (LJ) media. Further, the smear positive samples were then sent to IRL, Imphal for molecular analysis by CB-NAAT to detect the rpo B gene.

100 samples which were positive for AFB were processed. Out of these, 94 were sputa, 3 broncho alveolar lavage (BAL), 2 pleural fluids and 1 cerebrospinal fluid (CSF). After acid fast staining by Ziehl Neelsen (ZN) technique, grades were given according to the RNTCP guidelines as 0, 1+, 2+, and 3+. All positive samples for AFB were subjected to molecular analysis by CB-NAAT testing for simultaneous detection of Mycobacterium tuberculosis and rifampicin resistance at the IRL, Imphal. Cultures on LJ media were put up simultaneously (Figure 1). Colony growths were studied every week and counter checked by performing acid fast staining from the colonies. Pure strains are being preserved in LJ media in deep freezer for future references.

Approval of research ethics board

The study was started after getting the approval of the Research Ethics Board of the Institute, RIMS. All the participants fulfilling the inclusion criteria were informed about the nature of the study and informed written consents were taken.

Statistical analysis

Statistical analysis was carried out using SPSS version 21 (IBM). Descriptive data were presented using frequency, percentage, mean and standard deviation. Chi square test was used to see association between proportions. The level of statistical significance was set at $p\text{-value}<0.05$.

Results

A total of 100 samples from clinically presumed tuberculosis patients who were positive for AFB were collected. Among these, 94 were sputa, 3 BAL, 2 pleural fluids and 1 was CSF.

On grading the AFB stain microscopically, 42 were of grade 1+, 29 were grade 2+ and 29 were grade 3+ (Table 1). 87 (Male =64, Female =23) out of the 100 samples showed positive culture growth and the remaining 13 (Male =7, Female =6) showed no growth (Table 2). Again, of these 87 positive cultures, 81 were new cases and 6 were of old cases (Table 3). Culture positivity among different grading of AFB staining is statistically significant (p-value<0.05) and can be established that greater the number of acid fast bacilli in the sample, more is the chance of culture positivity (Table 1). Among the 87 culture positive, 7 were RR-TB (Table 4).

In the age wise distribution, maximum cases of tuberculosis as well as rifampicin resistance was seen in the age group of 41-50 (Figure 2). In this age group, 3 RR-TB were seen, all of which were of grade 3+, males and newly diagnosed.

It was observed that out of the 7 RR-TB, 5 of them were AFB grade 3+ and 2 were of grade 2+. This was statistically significant (p-value < 0.05) (Table 5).

In the present study, 71 cases were males and 29 were females. Out of these 71 males, 5 (7%) were resistant to rifampicin whereas of the 29 females, 2 (6.9%) were resistant to rifampicin. More number of males was affected by rifampicin resistant tuberculosis (RR-TB) but these findings are statistically not significant (p-value>0.05) as shown in Table 2. There is no correlation between rifampicin resistance and sex. Therefore, further study is mandated using some other variable to define their association to rifampicin resistance.

Out of the 94 newly diagnosed cases, 68 were males and 26 were females. 81 were culture positive and the remaining 13 were culture negative (Table 3). Again in these 94 new cases, 6 (6.4%) consisting of 5 males and 1 female were RR-TB. Whereas among the 6 old cases which consist of 3 males and 3 females, 1 (16.7%) was RR-TB who is a female participant (Figure 3). Comparing the percentages of the above new and old TB cases, rifampicin resistance is more among old cases. Overall, the total number of rifampicin resistance in the present study was found to be 7 (7%) as shown in Table 4.

Discussions

In 2019, the World Health Organization (WHO) estimated 3.4% new and 18% previously treated multidrug resistant TB cases globally. India accounts for one fourth of the total number of TB cases

Table 1: Association between culture and Acid Fast Bacilli (AFB) grading of the participants (n =100)

AFB	Culture		Total	p-value
	positive	negative		
1+	34	8	42	0.03
2+	24	5	29	
3+	29	0	29	
Total	87	13	100	

Table 2: Association of sex and culture status with rifampicin sensitivity pattern (n=100)

Sl. No.	Sex	Culture		Total	Rifampicin		p-value
		Positive	negative		Sensitive (%)	Resistant (%)	
1	Male	64	07	71	66(93)	5(7)	0.67
2	Female	23	06	29	27(93.1)	2(6.9)	
	Total	87	13	100	93((93)	7(7)	

Table 3: Treatment status and culture cross tabulation count for RR-TB (n=100)

Sl. No.	Treatment status	Culture		Sex		Total
		Positive	negative	Male	Female	
1	New	81	13	68	26	94
2	Old	06	00	3	3	06
	Total	87	13	71	29	100

Table 4: Association between rifampicin sensitivity among the study participants (n=100)

Parameter	Variable of interest	Rifampicin		p-value
		Sensitive (%)	Resistant (%)	
Culture on LJ medium	Positive(n=87)	80(91.9)	7(8.0)	0.59
	Negative(n=13)	13(100)	0(0)	
Treatment status	Old (n=6)	5 (83.3)	1 (16.7)	0.36
	New(n=94)	88 (93.6)	6 (6.4)	

Table 5: AFB grading and rifampicin sensitivity pattern

AFB	Rifampicin		Total	p-value
	sensitive	resistant		
1+	42	0	42	0.01
2+	27	2	29	
3+	24	5	29	
Total	93	7	100	

Figure 1: Buffy colonies of Mycobacterium tuberculosis on LJ medium (red arrows)

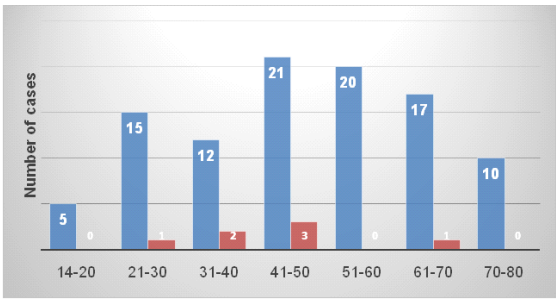


Figure 2: Age wise distribution of TB and RR-TB (n=100)

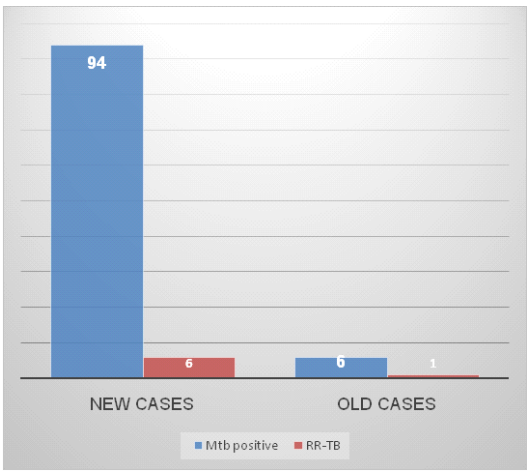


Figure 3: RR-TB in new and old cases (n=100)

worldwide, with 2.8% of the new and 14% retreatment cases being caused by multidrug resistant strain.[12] India has set an ambitious goal of TB elimination by 2025. This large burden of DR-TB will limit progress towards that goal.[8] The primary aim of prompt diagnosis and treatment of pulmonary TB is to cure the individual, as well as rendering him or her non-infectious and thus interrupting the chain of transmission.[5]

The present study shows the burden of rifampicin resistant tuberculosis among patients attending RIMS Hospital, a tertiary care hospital in Manipur in which 6 (6.4%) of the 94 new cases and 1 (16.7%) among 6 old cases were RR-TB. Comparing the old and new cases of TB, burden of RR-TB was much higher among the old cases (16.7%). Furthermore, the burden of RR-TB among new cases as well as old cases are also much higher in the present study than the overall above stated national RR-TB burden data of 2.8% among new and 14% among old cases.[12] Nevertheless, the findings of the present study are similar to those of the studies conducted by Menon et al ., in Mumbai and Rasaki et al., in Nigeria who also found the prevalence of MDR/RR-TB to be 5.9%, 6.0% and 7.2% respectively.[13,14] On the contrary, a study conducted by Saldanha et al., in western India showed lower prevalence of 2.5%.[15]

Regarding the district wise distribution in the present study, it was observed that the maximum cases of TB were concentrated in Imphal west district, which is a thickly populated area in Manipur. But further studies need to be conducted as these findings can be claimed biased due to under reporting from the remote districts and also very few similar studies have been conducted for MDR-TB in this region.

It was also observed that maximum number of the cases were in the working age group, highest being in 41-50 years range. In this age group, high rate of 3 RR-TB among the newly diagnosed male patients were observed. This is comparable to the study by Rasaki et al.[14]All these 3 RR-TB were of grade 3+. The bacterial load in these cases was high which may be alarming.

On examining the association of RR-TB with AFB grading, in our study all the RR-TB were in the AFB grade 2+ and 3+, that is, 5 RR-TB were grade 3+ and 2 RR-TB were grade 2+. This was found to be statistically significant (p-value <0.05). This indicates that there is a direct correlation between drug sensitivity and microscopic grading. This was also shown as a risk factor resulting in poor outcome as conducted by Phu et al.[16] On the other hand, this finding is contradictory to the findings of study conducted by Soedarsono et al., in Indonesia, in which they found that there is no correlation between microscopic grading and 1st line drug resistance.[17]

The present findings of 7% of RR-TB among males, and 6.9% of RR-TB in females were also in conjunction with the study conducted by More et al Maharastra.[18]

Although, culture is the gold standard

recommended by WHO for the definitive diagnosis of Mycobacterium tuberculosis, it was positive only in 87 (87%) of the samples which maybe mainly because of its low sensitivity compared to Gene expert/CB-NAAT.14 We observed that out of the 87 culture positive cases, 7 of them were RR-TB, but then again, it was statistically not significant (p-value>0.05) and accordingly, there is no association between the rifampicin resistance and culture positivity. If viable bacilli were present in significant amount, culture was seen to be positive irrespective of the drug sensitivity pattern. Here, the finding is similar to the findings of Theron et al wherein they hypothesized that lesser proportions of patients with drug-resistant TB have culturable Mycobacterium tuberculosis from respirable, cough-generated aerosols compared to patients with drug-susceptible TB, and that multiple factors, including mycobacterial genomic variation, would predict culturable cough aerosol production.[19]

Another factor that may decrease the sensitivity of growth in culture may be the over enthusiastic decontamination of sample, which causes decrease load of viable bacilli. This can be correlated with study conducted by Mtafya et al., in which they found that decontamination reduces the viability of the bacilli for culture.[20] Again, our findings of culture sensitivity of 87% is comparable to the findings of study conducted by Villegas et al.[21]

Since culture takes very long period of time to come to a conclusion, CBNAAT, which takes less than 2 hours to detect, can be claimed as a mainstay for decision making for commencement of early diagnosis and prompt treatment which may help in efficient control and timely eradication of the TB disease, for which correlation can be made with the culture positivity later. A study conducted by Dewan et al., concluded that CBNAAT helps in increased case detection in a very short span of time to diagnose pulmonary TB in PLHIV (patients living with HIV) as compared to conventional sputum microscopy.[22]

Conclusion

Although MDR-TB is emerging as a significant threat to tuberculosis control, limited data is available. Hence, the present research work is undertaken to highlight the continuing menace of rifampicin resistant tuberculosis among patients attending RIMS Hospital, a tertiary care centre in Manipur. As far as the state data is concerned, Manipur is observing a decreasing trend of resistance from 11.2% in 2017 to 7.9% in 2018, but it still continues to be a menace, posing as a great obstacle to the fight against this deadly disease. The high prevalence of RR-TB found in the present study indicates the importance of strengthening the awareness programmes, establishing early and accurate diagnosis and administration of correct and prompt treatment. In this regard, the CBNAAT comes as an effective tool to aid proper and early diagnosis.

Acknowledgement

The authors are thankful to the Head, Department of Microbiology, RIMS Hospital ,Imphal and Intermediate Reference Laboratory, Research and Development Wing, Imphal West for providing CB-NAAT facility. The first author is also grateful to the State TB officer, Health Directorate, Government of Manipur for providing financial support in the form of thesis grant under RNTCP/NTEP.

References

1. Raviglione MC. Tuberculosis. In: Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo, editors. Harrison's Principles of Internal Medicine. 19th Edition. New York: McGraw- Hill; 2015. p. 1102-3.
2. Kingsley E, Ike Anthony C, Chuku A. Prevalence of tuberculosis and rifampicin resistance among patients seeking medical care in Nasarawa State, north central Nigeria. Sci 2016; 4(3):214-8.
3. Guled AY, Elmi AH, Abdi BM, Rage AM, Ali FM, Abdinur AH et al. Prevalence of Rifampicin Resistance and Associated Risk Factors among Suspected Multidrug Resistant Tuberculosis Cases in TB Centers Mogadishu-Somalia: Descriptive Study. Open J Res Dis 2016;6(02):15
4. Krishnamurthy A, Rodrigues C, Mehta AP. Rapid detection of rifampicin resistance in M. tuberculosis by phage assay. Ind J Med Microbiol 2002; 20(4):211.
5. Watterson SA, Wilson SM, Yates MD, Drobniewski FA. Comparison of three molecular assays for rapid detection of rifampin resistance in Mycobacterium tuberculosis. J ClinMicrobiol 1998;36(7):1969-73.
6. Morlock GP, Plikaytis BB, Crawford JT. Characterization of spontaneous, in vitro-selected, rifampin-resistant mutants of Mycobacterium tuberculosis strain H37Rv. Antimicrob Agents Chemother 2000; 44(12):3298-301.
7. Sahana KS, Prabhu AS, Saldanha PR. Usage of cartridge based nucleic acid amplification test (CB-NAAT/GeneXpert) test as diagnostic modality for pediatric tuberculosis; case series from Mangalore, South India. J Clin Tuberc Other Mycobact Dis 2018;11(1):7-9.
8. India TB report 2019. Ministry of Health and Family Welfare Government of India.
9. Somoskovi A, Deggim V, Ciardo D, Bloemberg

GV. Diagnostic implications of inconsistent results obtained with the Xpert MTB/Rif assay in detection of Mycobacterium tuberculosis isolates with an rpoB mutation associated with low-level rifampin resistance. J ClinMicrobiol 2013; 51(9):3127-9.
10. Hillemann D, Rüsch-Gerdes S, Boehme C, Richter E. Rapid molecular detection of extrapulmonary tuberculosis by the automated GeneXpertMTB/RIF system. J ClinMicrobiol 2011;49(4):1202-5.
11. Bainara MK, Datta A, Sharma DK. Prevalence of rifampicin resistance by CB-NAAT in previously treated pulmonary tuberculosis cases. EurRespSoc 2016;48:1.
12. World Health Organization. (2018) . Global tuberculosis report 2018. World Health Organization.
https://apps.who.int/iris/handle/10665/274453.
13. Menon S, Dharmshale S, Chande C, Gohil A, Lilani S, Mohammad S et al. Drug resistance profiles of Mycobacterium tuberculosis isolates to first line anti-tuberculous drugs: A five years study. Lung India 2012;29(3):227-8.
14. Rasaki SO, AJibola AI, Musa SA, Moradeyo AK, Odeigah LO, Abdullateef SG, et al. Rifampicin resistant tuberculosis in a secondary health institution in Nigeria, West Africa. J Infect Dis Ther 2014;2(3):1-5.
15. Saldanha N, Runwal K, Ghanekar C, Gaikwad S, Sane S, Pujari S. High prevalence of multi drug resistant tuberculosis in people living with HIV in Western India. BMC infect dis 2019;19(1):391.
16. Phu PT, Vinh DN, Son VT, Hanh NT, Lan NH, Van Vinh T GEet al. Risk factors for poor treatment outcomes of 2266 multidrug-resistant tuberculosis cases in Ho Chi Minh City: a retrospective study. BMC infect dis 2020;20(1):1-0.
17. Soedarsono S, Mertaniasih NM, Sulistyowati T. First line anti-tuberculosis drug resistance pattern in multidrug-resistant pulmonary tuberculosis patients correlate with acid fast bacilli microscopy grading. Indonesian J Tropical InfectDis 2020;8(2):83-9.
18. More SW, Parande MA, Kamble SW, Kamble MS. Profile of drug-resistant tuberculosis in Western Maharashtra. J Family Med Prim Care 2017 ; 6(1):29-30.
19. Theron G, Limberis J, Venter R, Smith L, Pietersen E, Esmail Aet al. Bacterial and host determinants of cough aerosol culture positivity in patients with drug-resistant versus drug-susceptible tuberculosis. Nature Med 2020;1(1):1-9.
20. Mtafya B, Sabiiti W, Sabi I, John J, Sichone E, Ntinginya NE, et al. Molecular bacterial load assay concurs with culture on NaOH-induced loss of Mycobacterium tuberculosis viability. J ClinMicrobiol 2019;57(7):01992-18.
21. Villegas L, Otero L, Sterling TR, Huaman MA, Van der Stuyft P, Gotuzzo E et al. Prevalence, risk factors, and treatment outcomes of isoniazid-and rifampicin-mono-resistant pulmonary tuberculosis in Lima, Peru. PLoS 2016;11(4):1-11.
22. Dewan R, Anuradha S, Khanna A, Garg S, Singla S, Ish P, Agarwal S. Role of cartridge-based nucleic acid amplification test (CBNAAT) for early diagnosis of pulmonary tuberculosis in HIV. J IndAcadClin Med 2015;16 (2):114-7.

Original article

ASSESSMENT OF STEREOPSIS AMONG STUDENTS WITH MYOPIC REFRACTIVE ERRORS

Niraimathy-Nyorai Velu Subramani, Bindu Bhaskaran , Syeda Sadiya Ikram , V. Panimalar A. Veeramani, N. Divya

Abstract

Background: Stereopsis is the essential component of binocular vision. Stereoscopic vision is impaired in myopia, which should be corrected at the earliest.

Objective: To find the extent of improvement in stereoscopic vision by correcting myopia

Material & Methods: A prospective observational study included 50 students of both sexes aged 19-23 years with myopic refractory errors. Stereopsis was evaluated using TNO test at a distance of 30 cm using red green glasses.A baseline stereopis was evaluated before myopic refractory errors were corrected and after correction of these errors.

Results: There was a significant improvement in stereopsis after myopic refractory error correction.

Conclusion: Early correction of myopic refractory errors is necessary for good stereopsis vision and to reduce longterm complications as a result of stereopsis vision.

JK-Practitioner 2021;26(1):44-46

Introduction

Visual acuity refers to the ability to discriminate between two points. The first few months are essential in a human's visual development. Using both the eyes to see the same object simultaneously is known as binocular vision.

An essential component of binocular vision is stereopsis, the perception of depth produced by the reception in brain of visual stimuli from both eyes using binocular vision. It is the visual appreciation of three dimensions, that is, the ability to obtain the impression of depth by the superimposition of two images of the same object seen from two slightly different angles. Stereopsis develops by fourth month of life and reaches the adult level at six years of age and then deteriorates after the age of forty. In situations of monocular deprivation, it can affect binocular vision up to two years.

The simultaneous occurrence of pattern visual input is necessary for binocular vision development. Both eyes see different images and our brain fuses the images together to form a single image. During fusion, similarities between two images are matched together to aid in making image. However, if the differences between images are too many, then double vision can occur. After fusion is completed, depth perception is perceived. Our eyes use this fascinating function in our daily life. It allows us to judge distances and to see where objects are in relation to us and to each other. Only when both eyes work together we are able to do simple acts like driving cars, climbing up and down the stairs, etc.

Hence, performance of motor skill tasks are directly related to stereo acuity. Impaired stereoscopic vision is one of the important causes of anisometropic amblyopia. Myopia or nearsightedness ,where the parallel rays of light focus in front of retina, is one of the major causes of

Author Affiliations

Niraimathy-Nyorai Velu Subramani, , Bindu Bhaskaran , Syeda Sadiya Ikram , V. Panimalar A. Veeramani , N. Divya.

DEPARTMENT: OPHTHALMOLOGY
Saveetha Medical College
Chennai

Correspondence
Dr. Bindu Bhoskaran
Deptt. of Ophthalmology
Saveetha Medical College
Chennai
email: drbindubhas@gmail.com

Indexed
Scopus,INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Subramani NNV,Bhaskaran B , Ikram SS , Veeramani VPA Divya.N.Assessment Of Stereopsis Among Students With Myopic Refractive Errors.
JK Pract 2021;26(1):44-46

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Myopia, Vision

diminished loss of vision in early childhood. Stereoscopic vision reduction in the presence of myopia is very common as the conditions for yielding good stereoscopic vision is not fulfilled.

MATERIALS AND METHODS

The study was duly approved by Institutional Ethics Committee.

Study Design and Duration

This was a prospective observational study conducted between months of January and March 2020 under Department of Ophthalmology, Saveetha Medical College, Chennai among Saveetha University students.

Inclusion Criteria

150 students of both sexes, aged 19-23 with myopic refractory errors were included in this study.

Exclusion Criteria

Students with no myopic refractive errors or minimal myopic refractive errors and with history of refractive surgery were excluded from this study.

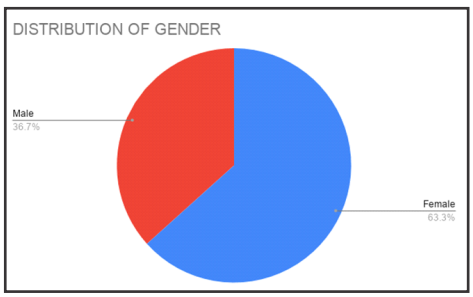
Method

Oral consent was obtained after explaining the purpose and procedure of study. The baseline visual acuity for distance was checked using Snellen chart at 6 meters for each student before and after myopic refractory errors were corrected. Stereopsis was then evaluated using TNO test at distance of 30cm using red green glasses. A baseline stereopsis was evaluated before myopic refractory errors were corrected and then stereopsis was assessed after the myopic refractory errors were corrected.

DATA AND ANALYSIS

Table 1: Distribution of Gender

Sex	Frequency	Percentage
Female	95	63.30%
Male	55	36.70%
Total	150	100%



Out of the 150 students included in the study, 63.3% of the respondents are females and 36.7% are males.

Data analysis was done using Chi Square Test as test of significance and P value of <0.05 was considered as statistically significant.

RESULTS

Table 1 shows the gender distribution of the study.

Table 2 displays the assessment of stereopsis before the myopic refractory errors are corrected. There is no statistical significance between the power of refractory error and the stereopsis.

Table 3 presents the assessment of stereopsis after the myopic refractory errors are corrected. There is no statistical significance between the power of refractory error and stereopsis.

Table 4 displays that there is a significant improvement in stereopsis after myopic refractory errors are corrected.

Stereopsis before Correction of Myopic Refractory Errors

Refractive Power	≤120 Arch Degrees	240 Arch Degrees	480 Arch Degrees	Total	P value
-3 to -5	55	44	35	134	
-5 to -7	4	6	4	14	0.725643
-7 to -9	1	0	1	2	
				150	

The p value is 0.725643.

The result is not statistically significant at P<0.05.

Stereopsis After Correction of Myopic Refractory Errors

Refractive Power	≤120 Arch Degrees	240 Arch Degrees	480 Arch Degrees	Total	P value
-3 to -5	133	1	0	134	
-5 to -7	14	0	0	14	0.998276
-7 to -9	2	0	0	2	
				150	

The p value is 0.998276.

The result is not statistically significant at P<0.05.

Stereopsis with TNO Test

Stereopsis with TNO Test	No. of Students before Correction	No. of Students after Correction	P Value
120 Arch Degrees	60	149	
240 Arch Degrees	50	1	0.00001
480 Arch Degrees	40	0	

The p value is 0.00001.

The result is statistically significant at P<0.05.

DISCUSSION

Stereopsis is the perception of depth produced by reception in brain of visual stimuli from both eyes in combination using binocular vision.[1] With

binocular vision, humans are able to see the same object as one image and that creates perception of depth. We use this function in our daily life as when we are driving cars, pouring cup of coffee, threading, sewing, knitting needles, climbing up and down stairs, reaching out to touch or hold something, suturing and performing surgery. [2]

In this study, the assessment of stereopsis was done in students with myopic refractive errors. It was found that P value of 0.00001, which is statistically significant, suggests that there was significant improvement after myopic refractive errors were corrected in students. In myopic patients, shadows that occur from greater disparity of the retina leads to decrease in the depth level of binocular vision which ultimately affects stereopsis. After myopic refractive errors are corrected, the light entering the eye focuses on the retina, leading to perfect vision, which ultimately leads to favorable binocular vision and improved stereopsis.

CONCLUSION

Based on these data, students with myopic refractive errors are associated with reduced stereopsis before correction. After the correction of myopic refractive errors, there was significant improvement in stereopsis. TNO Test is an effective test that can be used to evaluate in young age as early as preschool children to correct the myopic refractive errors early and to reduce long term complications.

REFERENCES

1. "Stereopsis: Definition of Stereopsis by Oxford Dictionary on Lexico.com Also Meaning of Stereopsis." Lexico Dictionaries | English, Lexico Dictionaries, www.lexico.com/definition/stereopsis.
2. "Stereopsis and Binocular Vision - How Both Eyes Work Together." Vision & Eye Health, www.vision-and-eye-health.com/stereopsis.html.

Further Reading

1. Cook, Emily. "Understanding Your Baby's Developing Vision." Parents, www.parents.com/baby/development/physical/understanding-your-babys-developing-vision/?slide=slide_de057864-6de5-4b26-a09f-fdaa1ec923e1.
2. Harkin, Michael. "Visual Acuity Test: Purpose, Procedure, and Results." Healthline, Healthline Media, 25 July 2012, www.healthline.com/health/visual-acuity-test.
3. Seltman, Whitney. "Myopia (Nearsightedness) - Causes, Treatment and Symptoms." WebMD, WebMD, 7 Feb. 2020, www.webmd.com/eye-health/nearsightedness-myopia.

Original article

EFFECT OF CEVIMELINE AND PILOCARPINE ON PRODUCTION OF SALIVA: A CROSSOVER STUDY

Surjeet Singh, Surrinder Singh

Abstract

Objective:

To compare the safety and efficacy of pilocarpine and cevimeline in the secretion of saliva in patients with dry mouth.

Methods: This is a randomized, crossover, double-blind trial. Half patients were administered pilocarpine 30mg, and the other half were administered cevimeline 5mg, three times a day in both cases, for a period of four weeks. After four weeks, one week washout period was provided, and then treatment was reversed in two groups for another four weeks. Patients were reevaluated at 4 and 9 weeks respectively.

Results:

22 patients were divided into two groups of 11 patients each, and administered the medication. Although both medications proved to increase salivary secretion, there was no statistically significant difference observed between pilocarpine and cevimeline regarding their efficacy as well as side effects.

Conclusion:

No significant difference was observed between pilocarpine and cevimeline in salivary production or side effects. However, further studies with sufficient sample size are recommended to find out more effective and safe drug in xerostomia patients.

JK-Practitioner2021;26(1):47-50

Introduction

Saliva is essential for many reasons. It mixes with food to make it palatable and easily digestible. It contains enzyme salivary amylase. It maintains healthy oral cavity. Decrease production of saliva (hyposalivation) is associated with oral discomfort; difficulties in mastication, swallowing, tasting and speaking; and an increased risk of oral candidiasis and dental caries[1]. Lack of saliva is associated with number of oral conditions which include gingivitis, severe dental caries, etc. [2]

Xerostomia is a subjective feeling of dry mouth. It is an unpleasant symptom and affects many people. This symptom is commonly found in elderly population, mostly due to side effects of commonly prescribed drugs in this age group[2,3]. Moreover, xerostomia is also common symptom in number of medical conditions, like Sjogren's syndrome or following therapeutic radiations given for head and neck cancers[4]. Therapeutic approaches in relieving this unpleasant symptom include topical sialagogues like artificial saliva, gums, topical moisturizers; and pharmacotherapy.

Pilocarpine and cevimelin are commonly prescribed medication in xerostomia. They both increase the salivary secretion. Safety and efficacy of pilocarpine have been proved by clinical studies[5]. However, limited number of clinical studies are available to support efficacy and side effect profile of cevimeline, that too with no conclusive results[1,6,7].

Pilocarpine is a cholinergic alkaloid obtained from the leaflets of South American shrubs of genus Pilocarpus. It has dominant muscarinic action (M1 and M3 receptors) and almost no nicotinic action. It causes

Author Affiliations

Surjeet Singh, Associate Professor,
Department of Clinical Pharmacology , SKIMS, Srinagar
Surrinder Singh, Dental surgeon , J&K Health Services.

J&K ,INDIA.

Correspondence
Dr. Surjeet Singh,
Associate Professor, Department of Clinical Pharmacology, SKIMS, Jammu and Kashmir, INDIA.
email:surjeet.singh@skims.ac.in

Indexed
Scopus, INDMED, EBSCO & Google Scholar among others

Cite this article as:
Singh S, Singh S. Effect Of Cevimeline And Pilocarpine On Production Of Saliva: A Crossover Study.JK Pract 2021;26(1):47-50

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Pilocarpine; Cevimeline; Xerostomia; Saliva

anomalous cardiovascular responses, and the sweat glands are particularly sensitive to the drug[8]. Cevimeline is a quinuclidine analogue of acetylcholine with a high affinity for M3 muscarinic receptors of both lacrimal and salivary glands[6].

The aim of our study was to see the efficacy of cevimeline and pilocarpine in stimulating the salivary flow in patients with xerostomia, and to compare the side effects between two drug treatments.

Methods

This double blind crossover randomized trial. Patients with moderate to severe xerostomia, with no clinical evidence of oral lesions, subjective perception of dry mouth, and a non-stimulated flow of less than 2ml of saliva in 5 minutes were identified and included in the study. Exclusion criteria include patients with non-controlled chronic obstructive pulmonary disease, depression, asthma, cardiac arrhythmias, glaucoma, neurological, gastrointestinal, hematological diseases and recent use of any medication which can have interactions with cevimeline and pilocarpine. Also patients were excluded if they were possibly sensitive to the medication of study or had used alcohol or cigarettes for a long period of time. Patients were instructed to report any adverse events due to medication during the study period.

Patient fulfilling the inclusion criteria were randomly assigned to a specific treatment protocol, after obtaining a proper informed written consent from each patient. Treatment pockets were provided through a pharmacist, independent of study investigators. After proper randomization, half of the patients (Group I) were administered capsule cevimeline 30mg three times a day for four weeks. After one weak washout period, these patients then received pilocarpine 5mg capsule, three times a day for another four weeks. Other half of the subjects (Group II) received pilocarpine first followed by cevimeline in similar way, followed by washout period of one weak and subsequent reversal of treatment. Neither the patient nor the investigator knew the identity of pills, because both were of same size and color.

Patients were evaluated three times during the study period, i.e. at the beginning (baseline), after four weeks (end of first medication session) and after another five weeks (end of the second medication session after one week washout period. Patients were instructed, not to eat or drink 60 minutes prior to saliva collection.

Two saliva samples were taken at each visit. The first saliva sample was obtained by asking the patient to spit as much as he or she could into a Dixie cup for five minutes. After five minutes, the cup was collected and saliva measured using a 1ml pipette. This provided an unstimulated flow rate. Second sample was taken after having the patient chew a block (1cm x 1cm) of unflavored wax, and saliva taken and measured in similar fashion as previous one. This provided stimulated flow rate.

Simultaneously, at each follow up, side effects due to medications were assessed through weekly questionnaire which patient had to complete and bring along at each visit. This was to determine whether there were any marked differences in experienced side effects between two medications. Statistical-analysis of the primary end points was carried out with ANOVA, and post hoc t-test. Side effects were compared using weekly questionnaire, and responses were 0-5 Likert scale.

Results

31 patients were screened, out of which, 22patients fulfilled the inclusion criteria and were included in the study. After properly evaluating the patients and taking their baseline investigations, and after collecting their baseline stimulated and unstimulated salivary flow, patients were randomized to treatment. Out of 22 patients, 11 were randomized into pilocarpine-cevimeline (pc) sequence, and another 11 were administered after proper randomization into cevimeline-pilocarpine (cp) sequence. Patients of both sequence groups were well matched by age, sex, race at baseline. All patients completed the study and none left in between.

Most of the cases of dry mouth were due to medication (15/22; 68%). Others were due to Sjogren's syndrome (2/22; 9.09%), radiation therapy (3/22; 13.63%), and unknown etiology (2/22; 9.09%). No significant difference was observed in baseline characteristics between two groups. Each group was given a washout period of one week to make it sure that there is no carryover effect of the drug in either group.

Unstimulated salivary flow rate:

There was an increased production of saliva per five minutes for both pilocarpine-cevimeline (3.84ml/5mts.) as well as cevimeline-pilocarpine (1.9ml/5min.) sequence groups at the end of 4 weeks. Difference between the two groups was not statistically significant (p=0.162) Table 1. Almost similar increased production of saliva was observed at the end of 9 weeks (3.96ml/5min). In pilocarpine-cevimeline sequence group, and, 1.52 ml/5 min. In cevimeline-pilocarpine sequence group). Again difference between two groups was not statistically

significant (p=0.113) Table 1.

Table 1. Unstimulated salivary flow rate (ml/5min.)

	Pilocarpine-cevimeline (pc)	Cevimeline-pilocarpine (cp)	P-value
Baseline	1.81	0.92	
4 week	3.84	1.95	0.162
9 weeks	3.96	1.52	0.113

Stimulated salivary flow rate:

Again there was an increased production of saliva per five minutes in pilocarpine-cevimeline sequence (9.02ml/5min) and cevimeline-pilocarpine sequence (7.2ml/5min) groups at the end of 4 weeks, and the difference between the two groups was again not statistically significant (p=0.306) Table 2. At the end of 9 weeks, production of stimulated saliva increased to 10.4ml/5min (pilocarpine-cevimeline sequence group) and 5.46ml/5min (cevimeline-pilocarpine sequence group) from baseline. Difference between two sequence groups was again not statistically significant (p=0.122) Table 2.

Table 2. stimulated salivary flow rate:

	Pilocarpine-cevimelin (pc) sequence	Cevimeline-pilocarpine (cp) sequence	P-value
Baseline	1.81	0.92	
4 weeks	9.02	7.2	0.306
9 weeks	10.4	5.46	0.122

Side effects:

Side effects were observed by both the groups. These were headache, nausea, gastric upset, diarrhea, pain around eyes and sweating. Comparing the two groups, no statistically significant difference in scoring of Likert scale on questions framed regarding side effects, was observed between two groups Table 3.

Table 3. Comparison of side effects between pilocarpine-cevimeline sequence and cevimelin-pilocarpine sequence groups.

	Pilocarpine-cevimeline (pc) sequence group	Cevimeline-pilocarpine (cp) sequence group	Mean difference	P-value
Did you felt improvement in dry mouth this week, and have more saliva	2.64	1.82	0.82	0.36
Did you felt worse this week	0.66	0.98	-0.32	0.10
Did you noticed increase in sweating this week	1.53	1.02	0.51	0.25
Did you felt more tear in eyes this week	0.18	0.67	-0.49	0.35
Did you had more frequent and severe headache this week	0.8	0.5	0.3	0.18
More nausea this week	1.15	0.68	0.47	0.32
Any pain felt around eyes this week	0.39	0.68	-0.29	1.12
Unusual GIT upset this week	0.71	1.20	-0.49	0.2
Diarrhea this week	0.36	0.63	-0.27	0.11

Discussion

Pilocarpine and cevimeline are two US-FDA approved medications for xerostomia due to any cause[6]. Both drugs increase the salivary secretion, thus improving the symptoms in patients of dry mouth[1,6,9]. In the present study, both pilocarpine as well as cevimeline significantly increase the salivary flow rate, both unstimulated and stimulated compared to baseline, at 4 weeks. ($p< 0.034$—unstimulated pilocarpine-cevimeline sequence; $p< 0.023$—unstimulated cevimeline-pilocarpine sequence; $p< 0.04$—stimulated pilocarpine-cevimeline sequence; and $p<0.052$—stimulated cevimeline-pilocarpine sequence groups). Comparing the two sequence groups, there was no statistically significant difference in salivary flow rate (both unstimulated as well as stimulated) at 4 weeks.

After a one week washout period, and reversing the treatment sequences, there was again a significant increase in both stimulated as well as unstimulated salivary flow rates in both groups compared to baseline, but no statistically significant difference was observed between two sequence groups. Results were similar to the a study[9], in which 12 patients were administered two medications in similar design which we followed in our study, and which also showed increase salivary flow rate and decrease in symptoms associated with xerostomia, and no statistically significant differences were found between two sequence arms.

Chainani-Wu et.al. 2006[1] in an open label crossover study on 20 patients of dry mouth compared three medications, pilocarpine, cevimeline and bethanechol. This study showed a significantly increased salivary flow rates with bethanechol compared to pilocarpine. There were many dropouts in their study, and out of 20 patients, only six took cevimeline and pilocarpine[9]. This may be the reason of more effectiveness of bethanechol. In our study, all the patients' completed the study, took the medication and there was no statistically significant difference in rate of salivary flow in both medication groups.

Another study[6] compared the efficacy of pilocarpine and cevimeline on large size sample (40 male volunteers). This study concluded cemiveline to be more effective than pilocarpine. This may be because only immediate response to **drugs were included here, because the study des**ign was different i.e. patients salivary flow rate was measured at 20,40, 60, 80,140 and 200 minutes after drug administration which were compared with the baseline. No long term effects of drugs were observed in this study.

Comparing the side effects, Chainani-Wu et.al. 2006[1] found that most common side effects like sweating were experienced more with pilocarpine. A double-blind, randomized trial[10] while evaluating the safety and efficacy of two dosages of cevimeline for treatment of xerostomia in Sjogren's syndrome concluded that 30mg of cevimeline three time a day resulted in substantial improvement in increasing salivary flow rate and most common side effects were sweating, abdominal pain and nausea. In the present study, cevimeline (30mg three times a day) was compared with pilocarpine (5mg three times a day) for salivary production as well as side effects. No difference was observed between two drugs as for as frequency and severity of side effects are concerned.

Among the limitations to present study was small sample size. Further studies, with large sample size, and placebo controlled are recommended to know real status of drug efficacy and safety in xerostomia patients.

Conclusion

Cevimeline and pilocarpine were compared for their safety and efficacy in xerostomia patients. No statistically significant difference was observed in rate of saliva production or side effects observed. However, further studies with sufficient sample size are recommended in future to evaluate the best and safe drug in patients with dry mouth.

Bibliography

1. Chainani-Wu N, Gorsy M, Mayer P, Bostrom A, Epstein J, Silverman S. Assessment of the use of sialagogues in the clinical management of patients with xerostomia. J Space Care Dentist 2006; 26: 164-70.
2. Shipa JA, Pillemer SR, Baum BJ. Xerostomia and the geriatric patient. J Am Soc Gerontol 2002; 50: 535-43.
3. Wick JY. Xerostomia causes and treatment. Consult Pharmacy 2007; 12: 985-92.
4. Ramos-Casals M, Tzioufas AG, Stone JH, Siso A, Bosch X. Treatment of primary Sjogren's: a systemic review. J Am Med Assoc 2010; 304: 452-60.
5. Schuller DE, Stevens P, Clausen KP, Olsen J, Gahbaur R, Martin M. Treatment of radiation side effects with oral pilocarpine. J Surg Oncol 1989; 42: 272-6.
6. Braga MA, Tarzia O, Bergamaschi CC, Santos FA, Andrade ED, Groppo FC. Comparison of the effects of pilocarpine and cevimeline on salivary flow. Int J Dental Hygiene 2009; 7: 126-30.
7. Santo N, Ono K, Haga K, Yokota M, Inenaga K. Effect of cevimeline on salivation and thirst in conscious rats. Arch Oral Biol 2007; 52: 26-9.
8. Joan Heller Brown, Palmer Taylor. Muscarinic receptor agonists and antagonists: Joel G Hardman, Lee E Limbered (Editors). Goodman and Gilman's The pharmacological basis of therapeutics. 10th edition 2001; 158-59.
9. Jae Brimhall, Malhar A Jhaveri, Juan F Yepes. Effect of cevimeline vs. pilocarpine in the secretion of saliva: a pilot study. Spec Care Dentist 2013; 33(3): 123-27.
10. Petrone D, Condemi JJ, Fife R, Gluck O, Cohen S, Dalgin P. A double blind, randomized, placebo-controlled study of cevimeline in Sjogren's syndrome patients with xerostomia and keratoconjunctivitis sicca. Arthritis Rheum 2002; 46: 748-54.

Original article

CLINICAL PROFILE OF INTER-HOSPITAL REFERRALS TO A TERTIARY CARE ICU

Suhail Sidiq, Mohammad Akbar Shah, Abdul Waheed Mir

Abstract

Background:
Inter-hospital referral of critically ill patients is quite common in developing countries. Very little data is available about these referrals. This study was conducted to assess patient profile of inter-hospital referrals to a tertiary care center ICU.

Methods:
This study was conducted over a period of two years. Data of patients referred to a tertiary ICU was collected. Data regarding pre-transfer communication, referring physician, referral summary, pre-transfer stabilization and resuscitation was also noted.

Results:
Total of 87 patients were referred for ICU care, with majority (86.20%) from a single center. In most (82.75%) of the cases no information was available about the referring physician. Pre-transfer communication was done only in 3 cases and referral documents were present in only 7 cases. Majority of referrals were to neurosurgery (72.41%). 48 patients had traumatic brain injury (TBI). Only two patients of TBI had cervical collar in place. Airway was secured in only 50% of patients who needed airway control. Although 23 patients got immediate bed in ICU, there was a mean delay of 11.45hours in rest (64) of the cases. One month mortality of 64.36% was observed in these referred patients.

Conclusion:
We observed poorly organized referrals of critically ill patients. There was lack of pre-transfer communication, inadequate resuscitation, lack of referral summaries. There was delay in timely ICU admissions of these patients.

JK-Practitioner2021;26(1): 51-54

Introduction

Inter-hospital referrals account for a significant number of admissions to intensive care unit (ICU). Transferring a critically ill patient from one hospital to another is based on non availability of speciality beds at the referring center or benefits of care available at another facility[1]. Shortage of ICU beds and increasing demand for intensive care is a global health care challenge, especially in developing countries[2]. Any inter-hospital transfer of patient should aim at maintaining optimal health and continuity of medical care during transport[3]. The need of inter-hospital transfer should weigh the benefits of providing extra care on management or outcome verses risks associated with transport of critically ill patient[4]. Proper and timely referrals to higher centers along with appropriate stabilization before shifting can improve outcome in critically ill patients, however poorly organized and hasty transfer can lead to increased morbidity and mortality[5]. We studied profile of the patients referred to a tertiary care ICU from different hospitals of the valley.

Material and Methods

This study was a hospital based prospective observational study conducted from January 2018 to January 2020. Patients who were referred to a tertiary care ICU from different hospitals of the valley were included in the study. After admission and primary resuscitation in the hospital, patient data regarding age, gender, primary diagnosis, referring physician,

Author Affiliations

Suhail Sidiq, Mohammad Akbar Shah, Abdul Waheed Mir.
Associate Professors, Critical Care Medicine, Sher- I-Kashmir Institute of Medical Sciences.

J&K ,INDIA.

Correspondence
Dr Suhail Sidiq.
Associate Professor
Department of Critical Care Medicine
SKIMS Soura, J & K India. 190011
Mob:9419408781
Mail: sidiqsuhail@gmail.com.

Indexed

Scopus, INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Sidiq S , Shah MA, Mir AW . Clinical Profile Of Inter-Hospital Referrals To A Tertiary Care Icu JK Pract 2021;26(1): 51-54

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:
Critical, inter-hospital transfer, referral

referring hospital, type of speciality referral was collected. Communication before referral, presence of proper referral summary, relevant basic resuscitation before transporting were also noted. Patient data was also collected regarding time interval between admission to A/E and availibility of bed in ICU. Thirty day mortality of these referral patients was recorded. Patient data was statistically analysed.

Results

During the study period from January 2018 to January 2020, total 87 patients were referred from different hospitals of valley and got admitted to the tertiary care ICU. Out of 87 patients 62 were males and 25 females. Mean age of the patients admitted was 44.66 years. Patients were referred from different hospitals of valley, with largest number from GMC Srinagar (86.2%) [Table-1].

Referring Centers

GMC Srinagar	75
Directorate of Health Services	5
SKIMS MCH	3
Bone and Joint Hospital	2
JLNM Rainawari	1
GMC Anantnag	1
Total	**87**

Majority of referrals (82.7%) were without any mention of referral doctors. [Table-2]

Table-2.
Referring Physician/Persons

Senior Resident	7
Postgraduate	2
Attendants	6
Not Known	72

Maximum patients were referred to neurosurgery department (72.41%) followed by neurology (10.34%) and cardiology (6.89%). [Table-3].

Table-3.
Referring Indications

Surgical Referrals	Neurosurgery	63
	CVTS	1
	Plastic Surgery	1
Medical Referrals	General Medicine	3
	Neurology	9
	Cardiology	6
	Nephrology	1
	Gastroenterology	3
Total		**87**

Out of 87 patients communication to ICU was provided in only 3 cases. Rest 84 patients were referred without any prior communication.

Referral summary was provided to only 7 patients, rest 80 patients had no or inadequate documents. 14 patients were transferred along with case files of referring hospitals.

All patients who were referred had intravenous access in place. Among surgical patients 38 patients needed intubation, but only 19 patients were intubated before shifting. Among medical patients, two were in need of intubation and only one was intubated. Out of 63 neurosurgery patients 48 patients had traumatic brain injury (TBI). Only 2 patients out of 48 with TBI had cervical collar in place.

Out of 87 patients only 23(26%) got bed in ICU immediately. 64(74%) patients did not get timely ICU admission, with minimum delay of 1 hour to a maximum of 72 hours. Average time to get ICU bed in these patients was 11.45 hours. Only 31 (35.63%) patients survived at the end of one month, leading to a thirty day mortality of 64.36% in these patients.

Discussion

Transfer of patients from one hospital to another is to provide access to specialized care[6]. For inter-hospital transfer, clinicians at hospitals with limited facilities identify patients who need higher levels of care. Patients need to be stabilized and transported safely to the best hospital for them to get the care they need[7]. Key elements of safe transfer involves decision to transfer, proper communication to the facility where patient is to be transferred, pre-transfer stabilization and preparation, choosing appropriate transport mode, continuity of care during transport and finally documentation and handover at receiving facility[8]. Inter hospital transfer is an important and neglected part of continuity of care of a patient. Transfer should balance benefits and risks involved[8]. The risks of referral are manifold[4].

A total of 87 patients who were shifted from different hospitals of valley got admitted in our ICU. The first key element of inter-hospital transfer is decision making and communication. The decision regarding transfer ideally has to be taken by a senior consultant level doctor after discussing with patients relatives about benefits and risks involved. A written informed consent along with reason to transfer is mandatory. In our study 72 patients were referred without knowing who was the referring physician. In 7 patients, senior resident had taken decision and in two cases postgraduate was the decision maker. Surprisingly attendants had taken the decision in 6 cases. No written informed consent was taken in any of the 87 cases.

Direct communication between transferring and receiving hospital is to be taken with sharing of patients condition, treatment given, reason of transfer, mode of transfer and timeline in a written referral document. In our study communication before referral was made only in three cases, while in 84 cases, patients were referred without any sort of communication. Referral summary is a legal document and is often not stressed upon during transfer. As per international guidelines, a standardized document should be used. Apart from details mentioned above, referral document must include name and designation of referring physician and any clinical event during transport. In our study[7] patients had proper referral summary, rest 80 patients had either no summary or inadequate documentation. In 14 cases, case files of parent hospitals were send along with the patients.

In developing countries poor documentation is a serious concern. In a study by Afzal Amin[9] et al, about deficiencies in referral notes, found majority of patient information was deficient. Because of inadequate information, treating team has to review entire history from attendants. Treating team most of the times have no idea about treatment received, thus wasting timely institution of holistic care.

Patient has to be adequately stabilized with care of airway, breathing, circulation and disability before transfer. Any associated life threatening preventable problem has to be corrected. Here use of pre transfer checklist is recommended.[10] Out of 48 patients of traumatic brain injury only 2 patients had cervical collar in place.Only 20 out of 40 patients who needed securing of airway before shifting, were intubated.In our study transferred patients had been poorly resuscitated. The outcome of inter hospital transfer depends on quality of care provided at referring centre, during transport as well as the receiving facility[11].

Out of 87 patients only 23 patients got ICU bed immediately or after undergoing surgery on arrival. Rest 64 patients did not get timely ICU admission. This emphasizes need of proper communication before referral, so that the referred patients get proper and timely intervention otherwise underscoring the basic purpose for which these patients were transferred. This also emphasizes need of more speciality ICU beds in our center and as well as other tertiary centers of the valley.

Studies have shown that inter-hospital transfer of critically ill patients has been associated with improved outcome[12] or no difference in outcome[13]. Some studies have shown increased morbidity and mortality[14]. In our study one month mortality of referred patients was 64.36%, which was significantly higher than mortality rate of ICU patients in India[15]. These referrals were associated with significant healthcare resource utilization and risks, although not with improved outcomes.

The aim of the study was to evaluate the profile of patients transferred, so we did not assess the reasons behind increased mortality in these patients. We did not evaluate whether referring hospital stay, peri-transfer variables during transfer impacted post transfer mortality. Although the primary aim of these transfers was to improve outcome but possibly because of ill planned transfers, poor communication, poor peri-transfer care and delayed availability of ICU bed may have led to increased mortality in these patients. The other limitation of our study was small number of patients studied. A larger retrospective study is needed in our center.

Conclusion

Our study sheds light on potentially modifiable factors which need to be taken care of during inter-hospital transfer of critically ill patients and subsequent initiatives for quality healthcare improvement. We suggest proper decision making at referral center, communication before transfer, proper referral summary, continuity of care during transport and increase of speciality beds at tertiary care centers in our setting.

References:

1. Wagner J, Iwashyna TJ, Kahn JM. Reasons underlying inter-hospital transfers to an academic medical ICU. J Crit Care. 2013;28:202-8.
2. Gordon K, Allorto N, Wise R. Analysis of referrals and triage patterns in a South African metropolitan adult intensive care service. S Afr Med J 2015;105:491-95.
3. Iwashyna TJ, Courey AJ. Guided transfer of critically ill patients: Where patients are transferred can be informed choice. Curr Opin Crit Care 2011;17:641-7.
4. Waydhas C. Intrahospital transfer of critically ill patients. Crit Care 1999;3:83-9.
5. Joosse P, Saltzherr TP, Van Lieshout WA, Van Exter P, Ponsen KJ, Vandertop WP. Impact of secondary transfer on patients with severe traumatic brain injury. J Trauma Acute Care Surg.2012;72:487-90.
6. Asgar HR,Abdulaziz SA, Samir HH, Hani MT, Hasan MA, Ahmad AJ, Abdullah AS, Muhammad RS, Yaseen MA. Demographics and outcomes of critically ill patients transferred from other hospitals to a tertiary care academic referral center in Saudi Arabia. Annals Of

Intensive Care 2013;3:26.
7. Theodore J, Iwashyna TJ. The incomplete infrastructure for interhospital patient transfer. Crit Care Med 2012;40:2470-8.
8. Ashish K, Jasveer S. Inter-hospital and intra-hospital patient transfer: Recent Concepts. Indian J Anesth 2016;60:451-7.
9. Afzal A, Parmeet B, Baronia AK, Poddar B, Mohan G, Singh RK, Kumar A. Deficits in referral notes during interhospital transfers of critically ill patients: An observational study from a developing nation. International Journal Of Perioperative Ultrasound And Applied Technologies 2013;2(2) :89-91.
10. Dunn MJ, Gwinnutt CL, Gray AJ. Critical care in the emergency department: Patient Transfer. Emerg Med J 2007;24:40-4.
11. Rishu AH, Aldawood AS, Haddad S, Tamin HM, H dorzhim. Demographics and outcomes of critically ill patients transferred from other hospitals to a tertiary care academic referral center in Saudi Arabia. Annals Of Intensive Care. 2013;3:26.
12. Knaus WA, Draper EA, Wagner DP, Zimmerman JE. APACHE II: A severity of disease classification system. Crit Care Med. 1985;3:818-29.
13. Rosenberg AL, Hofer TP, Strachan C, Watts CM, Hayward RA. Accepting critically ill transfer patients: Adverse effects on referral center outcome and benchmark measures. Ann Intern Med. 2003;3:882-90.
14. Coombes A, Luyt CE, Trovillet JL, Chastre J, Gibert C. Adverse effect on a referral intensive care unit performance of accepting patients transferred from another intensive care unit. Crit Care Med. 2005;3:705-10.
15. Divatia JV, Amin PR, Ramakrishnan N,Kapadia FN, Todi S, Sahu S, et al. Intensive care in India: the Indian intensive care case mix and practice patterns study. Indian J Crit Care Med. 2016;20(4):216-25.

Case Report

A DIAGNOSED CASE OF SARCOIDOSIS PRESENTING WITH DLE (DISCOID LUPUS ERYTHEMATOSUS):

Farah Sameem, Seerat Fatima, Sheikh Javeed Sultan, Sheikh Manzoor

Abstract

Sarcoidosis is a multisystem granulomatous disease involving mainly the lungs, mediastinal and peripheral lymph nodes, eyes and skin. Sarcoidosis is considered one of the 'great imitators' in dermatology due to its extremely variable cutaneous manifestation. One of the cutaneous forms of sarcoidosis includes the nodular and plaque type which can mimic many conditions including DLE (Discoid Lupus Erythematosus). The systemic involvement and progressive nature of sarcoidosis makes it important for us to differentiate sarcoidal lesions from DLE (Discoid Lupus Erythematosus), so as to avoid potential long term sequelae and provide proper treatment. Also, the concurrent existence of sarcoidosis and DLE (Discoid Lupus Erythematosus) is rarely documented in literature and needs further research and evaluation. Hence we present the case of a 37 year old female, a known case of sarcoidosis with skin lesions clinically and histologically similar to DLE (Discoid Lupus Erythematosus) so as to fill in some of the gaps in this area of study.

JK-Practitioner2021;26(1):55-57

Introduction

Sarcoidosis is an idiopathic systemic granulomatous disease, in which noncaseating granulomatous inflammation can occur in any organ. The lungs are the most affected organs, with approximately 90% of the patients presenting alterations in chest radiographs during the disease. Other manifestations include cutaneous, cardiac, ophthalmologic, hepatic and joint involvement. Sarcoidosis is, therefore, a heterogeneous disorder, both in terms of clinical presentation and severity. The skin being affected in about one fourth of the cases. Various specific forms of cutaneous sarcoidosis include maculopapular, nodular, subcutaneous, scar, and plaque sarcoidosis. In patients with plaque-type lesions, the activity of the systemic disease usually persists for more than 2 years [1-2]. They are associated with chronic forms of sarcoidosis including pulmonary fibrosis, peripheral lymphadenopathy, splenomegaly and chronic uveitis [2-3] and hence has a worse prognosis than the other cutaneous sub-types.

DLE is an inflammatory disorder of the skin, most frequently involving areas like the face and scalp, and characterized by well-demarcated erythematous, scaly plaques of variable size, that heal with atrophy, scarring and pigment changes. The disease may also affect areas away from the face and scalp and is known to have characteristic histology. DLE forms one end of a spectrum of this multi-systemic disease, with SLE at the other end of the spectrum. The risk of a patient with DLE developing overt SLE varies from 1.3% to about 6.5%. The risk is higher in patients with disseminated DLE (22%) than in DLE confined to the head and neck (1.2%) [4].

Clinically, sarcoidosis resembles an ensemble of diseases which may include discoid lupus erythematosus (DLE) or necrobiosis lipoidica among others. Diagnosis difficulties because of clinical similarities between cutaneous lesions of sarcoidosis and DLE have been reported

Author Affiliations
Farah Sameem MD , Assistant Professor ;**Seerat Fatima** MBBS, Postgraduate resident, **Sheikh Manzoor** MD ,Professor & Head : Department of Dermatology, Venereology, and Leprosy SKIMS MC-H Bemina,
Sheikh Javeed Sultan MD, Assistant Professor ,Department of Dermatology,GMC Srinagar, Kashmir,

Correspondence:
Dr.Seerat Fatima
Postgraduate Resident,Department of Dermatology, SKIMS MC-H Bemina, Srinagar, 190018
J&K, India.
rizviseeratfatima@gmail.com

Indexed:
Scopus ,INMED , EBSCO @ Google Scholar among others

Cite This Article as:
Sameem F , Fatima S , Manzoor S. A Diagnosed Case Of Sarcoidosis Presenting With Dle (Discoid Lupus Erythematosus): JKPract2021;26(1): 55-57

Full length article available at **jkpractitioner.com** one month after publication

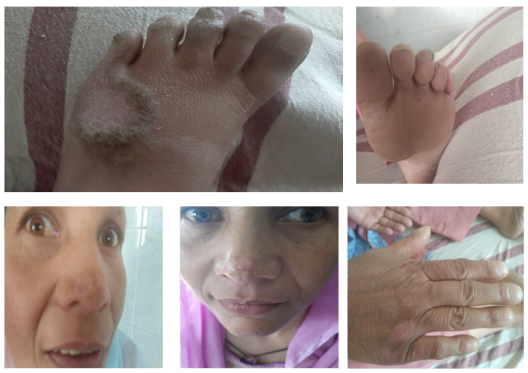
Key words: sarcoidosis , discoid lupus, erythematosus, co-exixtent dermatosis

since 1966, and the histopathological examination is necessary for establishing this diagnosis. The association of sarcoidosis with DLE is poorly documented in literature. Hence, we are reporting a case of sarcoidosis presenting with DLE.

CASE REPORT:

A 37-year-old female presented to the consultant Outpatient Department of Dermatology SKIMS MCH Bemina with the development of cutaneous lesions in a period of past 8-10 months. The patient was a labeled c/o sarcoidosis with CXR (chest x ray) and HRCT (high resolution computed tomography) chest showing Stage ii pulmonary involvement and was on treatment for the same (systemic corticosteroids). Other investigations included normal 1. EBUS (endo-bronchial ultrasound), 2.FNAC (fine needle aspiration cytology) -> lymphocytes with histiocytic collection – no granulomas).

The patient presented with the development of well demarcated, erythematous, scaly, annular to discoid plaques on the dorsum of her hands ,feet, fingertips, toes and some on the nose(mainly on photo-exposed areas)with slightly adherent scales and central atrophy and hypo pigmentation.



FIGURES 1: WELL-DEMARCATED ERYTHEMATOUS ANNULAR PLAQUE WITH SCALY SURFACE ON DORSUM OF THE FOOT, HANDS, NOSE AND TOES HEALING WITH SCARRING (CENTRAL ATROPHY AND HYPO PIGMENTATION)

The patient was investigated on lines of sarcoidal and DLE like lesions.

A skin biopsy was performed and HPE (histopathology) favoring DLE (Discoid Lupus Erythematosus) showed the following features: -

1. Lymphohistiocytic infiltrate the DEJ with prominent capillaries and unremarkable endothelial cells
2. Focal basal cell degeneration and colloid bodies
3. No granulomas were seen
   ANA, ENA (dsDNA), ACE levels came out to be negative.

Taking the clinical picture with histological confirmation into consideration a diagnosis of sarcoidosis with DLE (Discoid Lupus Erythematosus) was made and the patient was managed in lines of the same.

DISCUSSION:

DLE (Discoid Lupus Erythematosus) presents as erythematous plaques, which tend to regress spontaneously, causing scars and mainly affecting the face, scalp, ear and neck and in disseminated disease may extend to involve the trunk and extremities. In the present case, the synchronous occurrence of clinical features of both sarcoidosis and connective tissue disorder(DLE) suggests that a probable coexistence of LED and sarcoidosis cannot be ruled out, since both diseases can occur simultaneously or mimic one another[5].Previous genetic studies have established that variants in class I and II locus of human leukocyte antigens (HLAs) play roles in the susceptibility of developing sarcoidosis, as well as other autoimmune diseases, including lupus[6]. Additionally, evidence suggests that, given the similarities in the immunophenotyping profiles of patients with DLE and SLE, the pathogenesis of these two disorders also present resemblance between themselves[7].

The first clinical association between SLE and sarcoidosis was described in 1945, in which two patients with SLE presented non-caseous granulomas in the lungs, lymph nodes and blood vessels at the autopsy, thus suggesting the relationship between both diseases[8]. Since then, there have been reports of many cases that propose this simultaneous occurrence. The histopathological findings of sarcoidosis are independent of the involved organ or the clinical presentation of the lesion. The epidermis is usually not involved, while the dermis manifests a superficial and deep infiltrate of granulomatous formations, composed of epithelioid cells and surrounded by sparsely arranged lymphocytes (also known as the naked granulomas). Also, histopathological findings alone do not accurately differentiation between a sarcoid reaction and true sarcoidosis.

Being a diagnosis of exclusion, there are no well-established criteria for a diagnosis of sarcoidosis. Despite the various clinical manifestations inherent to this disease, histological confirmation is required in most of the cases with some exclusion for diagnosis. Heinle and Chang[9] proposed, in 2014, major (presence of non-caseous granulomas and absence of acid-alcohol resistant bacillus on biopsy) and minor (erythema nodosum, hypercalciuria, anemia, pancytopenia, cardiac arrhythmia, hilar adenopathy

on chest radiography, uveitis, spondyloarthritis, elevated immunoglobulins and liver enzymes and bronchoalveolar lavage findings) criteria, in order to guide clinical evidence to a more accurate diagnosis [10]. Also, ACE levels are seen to be raised in many of the patients.

As a result of its clinical heterogeneity, there are no well-established protocols for treatment of the disease, and corticotherapy is mostly indicated for cases of severe ocular, pulmonary involvement in stages 2 and 3, neurological, renal, cardiac and cutaneous manifestations, as well as splenomegaly.

DLE and several other diseases that resemble cutaneous sarcoidosis are relatively benign. Because of its characteristic clinical appearance and infrequent association with systemic lupus erythematosus, therapy for DLE is often administered without histological confirmation of lesions[4].This precludes identification of its close clinical simulation, cutaneous sarcoidosis. Hence a skin biopsy must be performed to confirm the diagnosis of DLE and to exclude sarcoidal skin lesions. Because of the systemic and progressive nature of sarcoidosis, it is critical that this distinction is made and that the patient be treated accordingly[4].

Hence in our case the appearance of new skin lesions was fully evaluated, even though she was a known c/o sarcoidosis to rule out other clinical differentials (DLE in our case) and also cutaneous annular plaque type sarcoidosis which holds a comparatively bad prognosis to other cutaneous forms of sarcoidosis and may have called for a more aggressive treatment regimen. Such simultaneous occurrence of sarcoidosis and Discoid Lupus Erythematosus (DLE) also demands a need for increasing research into the concurrence and association of the two conditions and the effect it may or may not have on the course of either of the two diseases.

REFERENCES:

1. Marcoval J, Mañá J, Rubio M. Specific cutaneous lesions in patients with systemic sarcoidosis: relationship to severity and chronicity of disease. Clin Exp Dermatol 2011; 36:739–44.
2. Veien NK, Stahl D, Brodthagen H. Cutaneous sarcoidosis in caucasians. J Am Acad Dermatol 1987;16:534–40.
3. Olive KE, Kataria YP. Cutaneous manifestations of sarcoidosis: relationship to other organ system involvement, abnormal laboratory measurements, and disease course. Arch Intern Med 1985; 145:1811–14.
4. Mark Goodfi eld1, Jan Dutz2 and Collette mccourt2.Lupus Erythematosus.In: Griffiths C, Barker J, Blieker T, Chalmers R, Creamer D, editors. Rook's Textbook of Dermatology. 9th ed. Wiley Blackwell;2
5. Henderson CL, Lafleur L, Sontheimer RD. Sarcoidal alopecia as a mimic of discoid lupus erythematosus. J Am Acad Dermatol.2008; 59:143-5.
6. Sweiss NJ, Patterson K, Sawaqed R, Jabbar U, Korsten P, Hogarth K, et al. Rheumatologic manifestations of sarcoidosis. Semin Respir Crit Care Med. 2010; 31:463-73.
7. Wouters CH, Diegenant C, Ceuppens JL, Degreef H, Stevens EA. The circulating lymphocyte profiles in patients with discoid lupus erythematosus and systemic lupus erythematosus suggest a pathogenetic relationship. Br J Dermatol. 2004; 150:693-700.
8. Teilum G. Miliary epithelioid-cell granulomas in lupus erythematosus disseminatus. Acta Pathol Microbiol Scand.1945; 22:73-9.
9. Heinle R, Chang C. Diagnostic criteria for sarcoidosis. Autoimmun Rev. 2014; 13:383-7.
10. Suresh L, Radfar L. Oral sarcoidosis: a review of literature. Oral Dis. 2005; 11:138-45.

Short Communication

"(PILOT) - ES"

Shweta Sharma Heeral Joshi, Pooja Anand

JK-Practitioner 2021;26(1): 58

Introduction

Most of the Pilots report neck pain during their aviation career. Neck pain, a common condition, not only affects normal individuals but also pilots. There is a high prevalence rate but causes are not clear yet considered as work related. Working environment of the pilots i.e. Bad posture, working in unfavorable situations like altered ergonomics during their flying missions are responsible for neck pain. Age is also a significant factor that has a negative effect on cervical spine.

Researchers studied those certain changes in cervical spine (kyphotic changes) leads to the alteration in cervical spine which causes neck pain.
Night vision equipments i.e. Helmets worn by the pilots leads to increase muscle work due to the excessive load on their cervical spine. Thus, increases neck pain in pilots.

Work force on neck pain and its connected disorders, the pain in the neck region is placed between superior nuchal line and spine of scapula, the anatomical area confined by the occipital protuberance and superior nuchal line, Superior border of the clavicle and suprasternal notch, with or without radiating pain to the head, thorax and upper limbs according to the Bone & Joint Decade 2000-2010. If the neck pain lasts for more than three months, it is considered as chronic pain. Various neck exercises like neck stretches and strengthening exercises of neck, combination of Manual therapy helps in relieving the neck pain. But few researchers established the fact that Pilates exercise program, is the best exercise and a best possible way to treat neck pain.

Pilates Training or method given by Joseph Hubertus Pilates in early 1920's, is a connection between mind and the body, consist of physical activity program which aims to achieve rehabilitation programs for various purposes like treating pain improving strength, flexibility, Balance & Coordination, Memory & Concentration and ultimately the quality of life of patients by maintaining the stabilization of the spine.

Pilates training are based on two approaches. First, Traditional Approach which consists of exercises with pre-defined repetitions with and without modifications. Secondly, Modern approach which consist of exercises modified according to the needs of an individual.

Further Reading

1. Moon, Bong Ju et al. Cross-sectional study of neck pain and cervical sagittal alignment in air force pilots. Aerospace medicine and human performance 86.5 (2015): 445-451.
2. De Araujo Cazotti, Luciana et al. Effectiveness of the Pilates method in the treatment of chronic mechanical neck pain: A randomized controlled trial. Archives of physical medicine and rehabilitation 99.9 (2018): 1740-1746.
3. Ang, Bjorn O., Mats Kristoffersson. Neck muscle activity in fighter pilots wearing night-vision equipment during simulated flight. Aviation, space, and environmental medicine 84.2 (2013): 125-133.
4. Thuresson, Marcus, Jan Linder, and Karin Harms-Ringdahl. Neck muscle activity in helicopter pilots: effect of position and helmet-mounted equipment. Aviation, space, and environmental medicine 74.5 (2003): 527-532.
5. Shedden, Mariana, and Len Kravitz. Pilates exercise a research-based review. Journal of Dance Medicine & Science 10.3-4 (2006): 111-116.

Author Affiliations

Shweta Sharma, Assistant Professor;.

Heeral Joshi , Assistant Professor;

Pooja Anand, Professor & Head :Department of Physiotherapy,

Manav Rachna International Institute of Research and Studies, Faridabad, Haryana

Correspondence
Dr. Shweta Sharma (PT) Assistant Professor, Department of Physiotherapy, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana

MAIL ID-
shwetasharmampth27@gmail.com
Contact no.- 8860405721

Cite this article as:
Sharma S, Joshi H, Anand P. "(PILOT) - ES" .
JK Pract 2021;26(1): 58

Full length article available for download at **jkpractitioner.com** two months after publication

Review

DELAYED CARE IS NO CARE: COVID-19 IMPACT ON CANCER PATIENTS AN ETHICAL PERSPECTIVE

Nirbhay Kumar Mishra ,Misba Hamid Baba

Authors Affiliation

Nirbhay Kumar Mishra

Assistant Professor Institute of Applied Sciences & Humanities
GLA University, Mathura.

Misba Hamid Baba

Research Officer ,Department of Radiological Physics, SKIMS. Research Scholar Department of Physics, GLA University Mathura

Abstract

One of the fundamental values in medical ethics is the concept of care. The care further establishes the trust between a doctor and a patient. However, due to Covid-19, non-Covid patients have not received the proper care and treatment or received delayed treatment. As a result, many patients have died, and many have suffered painful deadly consequences.

Aim and objective:

One of the aims of this paper is to analyze how delayed care could damage cancer patients' treatment and recovery and the other is to suggest integrated covid-cancer care management strategies. The present paper offers a medical ethics perspective based solution on analyzing the impact of Covid-19 on cancer patients.

Materials and Methods:

We have adopted a systematic review-analysis approach for the literature review. The cross-sectional systematic review of the contemporary cancer research papers published in major databases viz- PubMed Central, Elsevier, Emerald Insight, Science Direct, and Scopus. The terms used to search the journal articles included "cancer ethics and Covid-19".

Conclusions:

Delayed care is of no value from the viewpoint of medical ethics. Doctors and health care providers are like life saviors. They deal with the socially respected medical profession and perform like a social warrior. Patients suffering from any severe disease such as cancer must be given due attention and timely care as cancer cannot wait till the pandemic gets over. Cancer patients are too vulnerable to disease progression, metastasis, or other malfunctioning medical conditions that delays in treatment can be life-threatening. Healthcare systems focused on combatingCovid-19, lockdown and social distancing caused the delay in critical illness treatments like cancer. Cancer patients need proper treatment in due course of time as per medical severity. Therefore, medical professionals must uphold medical ethics in treating patients with such reasonable care in time.

Keywords:

Cancer-care; Medical-ethics; Covid-19; Pandemic, Covid-cancer integrated management system.

JK-Practitioner 2021; 26(1):59-66

Correspondence

Misba Hamid Baba

Research officer ,Department of Radiological Physics , SKIMS. Research Scholar Department of Physics, GLA University Mathura. Email: misba8@gmail.com

Indexed

Scopus, INDMED, EBSCO, SCI & Google Scholar among others

Cite this article as:

Mishra NK , Baba MH.Delayed Care Is No Care: Covid-19 Impact On Cancer Patients An Ethical Perspective .JK Pract 2021;26(1):59-66

Full length article available for download at **jkpractitioner.com** two months after publication

Introduction

The health sector has been facing a global challenge to defeat the Covid-19. It has affected everyone's social, mental, and physical health. However, it posed deadly problems for the patients who had been already suffering from life-threatening diseases such as cancer. These people with compromised immunity don't have much hope from the possible modernist medication available. The patient and the health care providers still try to fight together, along with all the available cancer management modalities. Covid-19 pandemic has increased

the pain. It has caused the delay, due to the prevailing lockdown situation, in the diagnosis of the disease, or delays in the treatment due to Covid-19 infection to patient or caretaker or the health care professional themselves. It is the moral principle to safeguard all, i.e. the patient, staff, and caregiver. The ethical duties must be practiced, and keeping all the moral conducts high, each person should be preferred for the required care . Triage should be performed according to the severity of harm for each cancer patient who may be delayed in his/her treatment either due to the Covid-19 testing or the infection itself. There should be a level playing field. Thus, using clinical judgment would be the most ethical approach in prioritizing patients for medical and clinical appointments. Each health care provider must do the best in offering much-needed care and support.

While the actions of health care professionals were as exemplary, medical ethics was viewed from the viewpoint of heroism, but the need for the hour is to be diligent in recognizing the seriousness and criticality of the cases. And it is unreasonable since a heroic assumption presumes that clinicians would assume a disproportionate share of the responsibility to be allocated[1]. "When medical ethicists assess clinical practice in terms of the proportion of burdens and benefits, they invoke the doctrine of proportionality"[2]. A choice is proportionate when the benefits outweigh the burdens. "Alternately framed, the relationship between ends and means should be proportional, that is, adequate or appropriate"[3]. During this pandemic, all such formulations decide about the clinical decision of the risk versus benefit for a cancer patient who needs oncological treatment. The principle of proportionality should be cultivated and whatever is within the patients best interest should be followed [4].

2. Impact of Covid-19 on Cancer patients

World Health Organisation declared Covid-19 a pandemic[5-7], and this pandemic has resulted in the suspension of all the outpatient clinics and scheduled patient appointments also got postponed up to an indefinite period, following lockdowns upon lockdowns[8]. Even the scheduled surgeries were suspended initially, and later few urgent ones were restored after confirmation of the patient status for Covid-19 infection and availability of Intensive Care Unit facilities in the hospitals. All non-urgent ones still remain delayed or suspended. During this pandemic, the need to care for patients with emergency reporting continues. Cancer patients undergoing active anti-cancer therapies are at severe risk in this Covid-19 pandemic and can severely manifest this infection. That fear and distress caused by Covid-19 pandemic can increase anxiety to these patients, which is altogether beyond limits. The fear caused by delay in diagnosis, delay in treatment, surgeries, and follow-ups are so much that actively affects the quality of life of these patients. Cancer patients are continuously at a threat of either disease progression or effectiveness of the delayed care offered to them during this Covid-19 pandemic. Many cancer patients experienced financial stress and as a result, were depressed of deprived cancer care. The anxiety is further increased by the fact that these patients can develop and have cancer get caught by Covid-19 infection, which worsens their confidence and treatment efficacy (Survey: ACSCAN, 2020)[9]. Cancer patients have been reported to have an elevated risk of serious infections, with the risk of mechanical ventilation or Intensive Care Unit admission or death rising by ~3.5-fold relative to patients without cancer[10]. Cancer history is found to confer a very huge risk for serious complications and is associated with worse Covid-19 outcomes. Wang and Zhang noted that the first danger for cancer patients in the Covid-19 pandemic was insufficient access to adequate health care and the inability to obtain appropriate medical services promptly on time, especially in such high-risk epidemics[11]. The scarcity of funding and hence the increased demand for services hinder the high quality of elective treatment for cancer patients[12]. According to a study by the American Cancer Society Cancer Action Network, 27% of active care patients registered a delay in their treatment, and 13% of patients had their treatment deferred without discovering when it will be scheduled again.

Furthermore, one-third of all cancer patients indicated that they were concerned about the effect of Covid-19 on their ability to receive care, which is particularly prevalent among patients in active treatment, as per the same survey (40 percent). Cancer patients often experience economic stress in the aftermath of the pandemic, as many around the nation. It was found that during Covid-19, almost 4 in 10 (38 percent) respondents of this survey had a notable impact on their ability to afford their treatment, mainly to minimize working hours (14 percent). In particular, decreased work hours and lost jobs during the lockdowns are troubling because they can potentially affect access to health care insurance (Survey, ACSCAN, 2020)[13].

3. Impact of Delayed treatment

Covid-19 pandemic has disturbed almost every aspect of livelihood due to a shift to a new normal [14]. It is not easy for everybody to adapt to this new

normal, but we are left with no option as long as we do not have any other comorbidity to combat. But the people suffering from diseases like cancer can't wait and adapt to this normal as it's a disease which progresses at its own pace and any delay in its treatment at any stage can prove as if there wasn't any care. Cancer patients again tend to be more vulnerable to this Covid-19 infection due to their immune suppression as a result of their anti-cancer therapies. Any further delays in their treatment can increase either the mortality rate or the disease progression among them. Delays during cancer treatment have been categorized as primary (interval between the initiation of symptoms after the first hospital visit), secondary (interval between the onset of diagnosis to the start of the treatment) and tertiary (follow up post-anti-cancer therapy) [15], [16]. A significant proportion of time is usually consumed in primary and secondary delay in most cancer patients awaiting treatment. Covid-19 pandemic has been an important factor in the primary as well as secondary delaying of the cancer treatment due to factors related to patient viz- travel inconvenience during the lockdown or the financial issues, Covid-19 infection to the patient himself or due to healthcare-related factors like delays in surgeries, shortage of hospital facilities or shortage of health care workers. At the secondary stage also, the pandemic has a direct impact on the treatment delivery. In the event of a definitive initiation delay in care, a direct decrease in locoregional control and overall survival may occur. In their research (Hanna et al., 2020), concluded that an improvement in radiotherapy waiting time is normally correlated with a deterioration in local control rates and overall survival [17]. Similarly, in patients with delays in diagnosis and surgery, an adverse effect on survival has been reported (Xu et al., 2014). It was seen that a delay of one month can increase the risk of dying from 6 to 13 percent. For all patients with carcinoma (e.g. during COVID-19 lockdown and recovery), a surgical delay of 12 weeks will cause 1,400 excess deaths in the UK, 6,100 within US, 700 in Canada, and 500 in Australia, assuming surgery was the primary treatment in 83% of cases, and mortality at once was 12% [18].Also increased wait times or delays between detection of carcinoma and therapy initiation may affect the prognosis. A delay may cause disease development or complications in treatment. Many variables could lead to treatment delay, and while many studies have examined how this may have impacted recurrence and survival. [19-27]. A British study found that treatment delays have adversely affected the prognosis when identified as having treatment symptoms for more than 12 weeks (Richards et al., 1999). Therefore, enhancing the treatment time of cancer treatments leads to adverse effects on the anticipated response and quality of life of cancer patients to treatment. Besides, there is still a fear of advancement that can affect the well-being, quality of life, and social functioning of cancer patients (Dinkel & Herschbach, 2018). Therefore, treatment delays will lead to emotional stress, hampering quality of life of these patients. Different therapy regimens are normally provided at intervals to cancer patients to allow adequate time for normal cells to undergo sub-cell repair. Surviving tumor cells are expected to increase during treatment breaks; patients with delays in ongoing adjuvant therapies are more likely to have accelerated tumor cell repopulation[28-29]. It also worsens cancer treatment and can cause disease recurrences and/or treatment resistance. Patients with late-stage disease need palliative care which if delayed, decreases the quality of life and worsens the survival of these patients. Cancer care for the patients on follow up that is at tertiary level, is also affected due to Covid-19 which refrains them from the assessment of the disease/treatments[30-32]. Fig.1 demonstrates that how the cancer care is affected due to covid-19.

4. Medical Ethics Perspective: Ethical Guideline for Covid-Cancer Management

A doctor's primary ethical duty is to provide and promote his patient's well-being in all situations, be it a pandemic like Covid-19. All the policies should aim for the best possible management of allocating scarce health care resources or at least use "triage" in case of scarcity of resources. It is possible to follow multiple triage strategies; each one is based on a different ethical rationale[33]. It is a challenge to provide routine health care facilities during this pandemic and in the case of treating cancer patients; the challenge doubles due to the spreading nature of cancer. Cancer patients with suppressed immunity are more vulnerable to infections and treating them with a routine modality during this pandemic becomes very hard as we need to treat them and simultaneously catering the health care needs which arrised due to the covid-19. Therefore, by adopting the triage guidelines for non-infected cancer patients and allocating them the services they need at that time as part of their oncology care requirements, ethical dilemmas Fig.2 should be addressed[33], (Allocating Limited Health Care Resources, 2020). Doctors and healthcare providers thus have a responsibility to prioritize the non-coronavirus cancer patients undergoing different modalities of treatment at various stages of their treatment regimen as per the National Health Services (NHS)

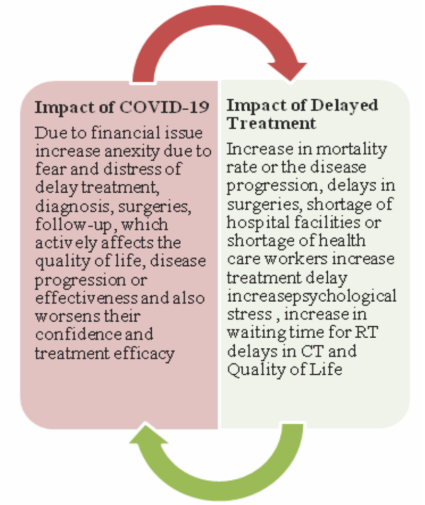


Fig. 1. Cancer care is affected due to Covid-19

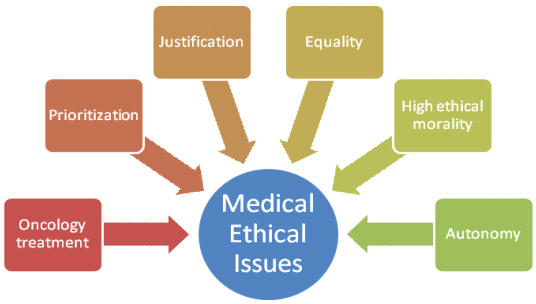


Fig. 2. Medical Ethical issues to be addressed during the pandemic concerning cancer treatment

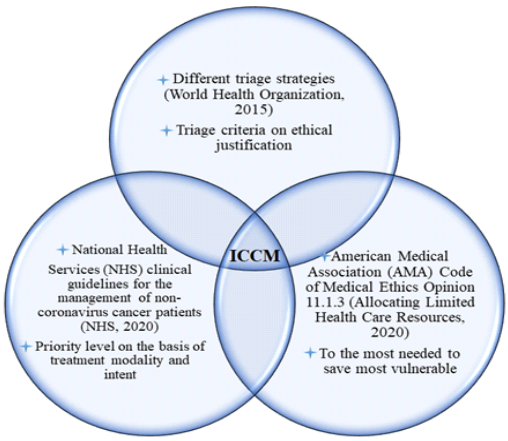


Fig. 3. An integrated covid-cancer management system (IC-CM) to manage the impact of the covid-19 pandemic on cancer car

clinical guidelines for the management of non-coronavirus cancer patients [34] while as for coronavirus infected patients treatment should justify harm versus benefit policies. Furthermore, ethical considerations must also be employed in allocating the resources as per the American Medical Association (AMA) Code of Medical Ethics Opinion 11.1.3 [35].The rationale of prioritizing or allocating a resource should be explained to patients always keeping things transparent and ethical morals high. Table 1 summarizes an ethical system of integrated covid-cancer management by amalgamating the three base recommendations of health care management systems and can thus be applied while dealing with cancer patients.

5. Discussion

Much has been talked about different systems to be applied to combat the Covid-19 pandemic to prevent the spread of coronavirus infection and some way or the other has severely impacted the lives of all humans as well as the people who already are in urgent need of medical help. Among them are the patients who either are living with cancer or struggling due to its multimodality treatment regimens and multiple treatment sessions. Therefore the care they need and the management of this care delivery should be as per the bioethical principles and all the governments and the health care providers should take a moral clarity that all the lives are counted equal on a rationalized scale. Thereby it becomes an ethical obligation sort of thing to ensure the delivery of care to all the patients living with cancer[36]. Also the allocation of the resources especially for scarce resources coordinated programs via international organizations like WHO can be sought to help developing or disadvantaged countries [37]. Regarding the management of treatment of cancer amid pandemic, a kind of integrated covid-cancer management has been suggested in this review to deliver the care on time with ethical reasoning so that every cancer affected patient should not get upset with the health care providers if they alter their treatment regimen or while prioritizing one patient above the other or while allocating the scarce resource to one over other Table1. One should always put him/herself in their position and should feel their state of mind that being neglected or under prioritized can lead to severe depression and the patient may lose his/her confidence in the health care system. Thus keeping an ethical consideration in mind while altering any treatment regimen of any cancer patient, the reasons for the new treatment regimen should be explained thoroughly to the patient and/or his caretakers, to avoid trust issues between them and the health care providers. Otherwise, cancer patients may feel that they are considered a 'burden' by the health system,

Table 1.IntegratedCovid-Cancer Management for timely care to cancer patients

Different triage strategies (World Health Organization, 2015)		National Health Services (NHS) clinical guidelines for the management of non-coronavirus cancer patients (NHS, 2020)		American Medical Association (AMA) Code of Medical Ethics Opinion 11.1.3 (*Allocating Limited Health Care Resources*, 2020).
Triage criteria	**Ethical Justification**	**Priority level**	**Patient group**	**Allocate scarce health care resources fairly among patients, in keeping with the following criteria:**
Save Greatest number of people	By prioritizing allocation so that most of people are saved	**Patients undergoing surgery**		a) Base allocation policies medical need, the urgency of need, likelihood and anticipated duration of benefit, and change in life quality.
		Priority level 1a Priority level 1b	Emergency—operation needed within 24 h to save the life Urgent—operation needed with 72 h	
First come, first served	By prioritizing allocation to whoever accesses first, as emergency is for all	Priority level 2	Elective surgery expectation of cure	b) Give priority to patients for whom treatment will avoid premature death or extremely poor outcomes, then to patients who will experience the greatest change in the quality of life, when there are very substantial differences among patients who need access to the scarce resource(s).
Protect most vulnerable	By prioritizing allocation to the most vulnerable	Priority level 3	Elective surgery can be delayed for 10–12 weeks will have no predicted negative outcome.	c) Use an objective, flexible, transparent mechanism to determine which patients will receive the resource(s) when there are no substantial differences among patients who need access to the scarce resource(s).
Equal access	Each person is given equal access the resource	**Patients on systemic anti-cancer**		(d) Explain the applicable allocation policies or procedures to patients who are denied access to the scarce resource(s) and the public.
		Priority level 1	• Curative therapy with a high success chance• Adjuvant (or neo)	
Priority for the most important	By allocating resource to important individuals of the society e.g., first responders, health care workers)	Priority level 2	• Curative therapy intermediate chance of success. • Adjuvant (or neo) therapy	
		Priority level 3	• Curative therapy of a low chance • Adjuvant (or neo) • Non-curative therapy	
		Priority level 4	• Curative therapy with a very low	
		Priority level 5	• Non-curative therapy	
		Priority level 6	• Non-curative therapy with an intermediate chance of palliation	
		Patients on radiation therapy		
		Priority level 1	• Patients with category 1 (rapidly increasing) tumours	
		Priority level 2	• Urgent palliative radiotherapy malignant spinal cord compression	
		Priority level 3	• Radical radiotherapy for Category 2 (less aggressive) tumours	

and their treatments should be set aside to facilitate the saving of human and non-human resources for other initiatives that are generally regarded as more significant.Such a view is rational to trigger feelings of anxiety and fear about the results of their treatments, as well as dissatisfaction and disappointment with the health system, although it may break down the relationship between the doctor and patient and harm the outcome of the treatment [38]. Patient prioritization should reduce the death and serious disability when allocating limited medical services to patients. Intrinsically, neither covid-19 patients nor patients with rapidly growing cancers merit more resources than the other patients.[39]. Patients with cancer demonstrate worsening conditions and weak Covid-19 infection outcomes. In cancer patients who are undergoing anti-tumor therapy, vigorous screening for Covid-19 infection is advised and therapies triggering immuno-suppression should be avoided or their dosages should be reduced in the case of Covid-19 co-infection[40].

6. Decisions Policies and Strategies

Decisions during pandemic times should be very much justifiable and can rely on the institutional policies to manage pandemic at the department level keeping the bioethical principles in mind table1 Fig. 2. shows all the ethical delimas that need to be fulfilled and addressed during the pandemic. In a pandemic, we may need to move from a focus on respect for the autonomy of the patient (the first of Beauchamp and Childress's principles) to an emphasis on social justice (the fourth principle). But, it is critically important that we obey the advice of Kant to value the autonomy of the patient. What is being done and for what reasons, the patient demands to know.If we deviate from long-standing standards, this needs to be fully shared with the patient to make them fully aware. Kant stressed the significance of the categorical imperative, "Act only according to the maxim whereby you can, at the same time, will that it should become a universal law."This "golden rule" should still hold sway [41].

7. Conclusions

Oncological care in this Covid-19 pandemic should be handled very seriously, and a fine-scale balance should be maintained between deferring or delivering cancer patients' treatment. We recommend that a justifiable approach be applied and integrate the available recommendations as shown in Fig.3. Optimal patient care should be provided by identifying the cancer stage and the kind of cancer the patient is suffering by following the integrated covid-cancer care management system. Furthermore, all the potential delay factors viz delay at diagnosis. Delay to the start of therapy (systemic/adjuvant) should be minimized by optimizing and adapting the methods that would not alter the outcome in treating these patients. Crisis management strategies such as triage to classify emergencies justified changes to treatment procedures and telemedicine services can be used so that care delivery is not delayed.

Limitation& Future Scope

Our study was a short cross-sectional review-based study. If cancer care strategies management develops specific other justifiable management criteria, this study can be extended and updated.

Acknowledgements

We want to thank Elsevier Covid-19 resource centre, PubMed, and the research scholars of GLA University for the research resources and figures to complete this work. The figures which we have used in the paper have been developed by authors only.

References

1 J. J. Fins, "Distinguishing professionalism and heroism when disaster strikes," Camb Q Healthc Ethics, vol. 24, no. 4, pp. 373–384, Oct. 2015, doi: 10.1017/S0963180115000043.

2 R. Baker, "Albert R Jonsen, The birth of bioethics, Oxford University Press, 1998, pp. xiv, 431, $45.00 (hardback 0-19-510325-4).," Medical History, vol. 43, pp. 403–404, Jul. 2012, doi: 10.1017/S0025727300065492.

3 G. Hermerén, "The principle of proportionality revisited: interpretations and applications," Med Health Care Philos, vol. 15, no. 4, pp. 373–382, Nov. 2012, doi: 10.1007/s11019-011-9360-x.

4 J. J. Fins and F. G. Miller, "Proportionality, Pandemics, and Medical Ethics," The American Journal of Medicine, vol. 133, no. 11, pp. 1243–1244, Nov. 2020, doi: 10.1016/j.amjmed.2020.06.008.

5 D. Cucinotta and M. Vanelli, "WHO Declares COVID-19 a Pandemic," Acta Biomed, vol. 91, no. 1, pp. 157–160, 2020, doi: 10.23750/abm.v91i1.9397.

6 Jamie Ducharme, "The WHO Just Declared Coronavirus COVID-19 a Pandemic | Time," Mar. 11, 2020. https://time.com/5791661/who-coronavirus-pandemic-declaration/ (accessed Jan. 20, 2021).

7 World Health Organization, "WHO Director-General's opening remarks at the media briefing on COVID-19. 2020," Website:/. Accessed, vol. 19, Mar. 2020.

8 A. Spinelli and G. Pellino, "COVID-19 pandemic: perspectives on an unfolding crisis," BJS (British

Journal of Surgery), vol. 107, no. 7, pp. 785–787, 2020, doi: https://doi.org/10.1002/bjs.11627.
9 "Survey: COVID-19 Affecting Patients' Access to Cancer Care," American Cancer Society Cancer Action Network, Apr. 15, 2020. https://www.fightcancer.org/releases/survey-covid-19-affecting-patients%E2%80%99-access-cancer-care (accessed Jan. 20, 2021).
10 W. Liang et al., "Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China," Lancet Oncol, vol. 21, no. 3, pp. 335–337, Mar. 2020, doi: 10.1016/S1470-2045(20)30096-6.
11 H. Wang and L. Zhang, "Risk of COVID-19 for patients with cancer," Lancet Oncol, vol. 21, no. 4, p. e181, Apr. 2020, doi: 10.1016/S1470-2045(20)30149-2.
12 G. Pellino and A. Spinelli, "How Coronavirus Disease 2019 Outbreak Is Impacting Colorectal Cancer Patients in Italy: A Long Shadow Beyond Infection," Dis Colon Rectum, vol. 63, no. 6, pp. 720–722, Jun. 2020, doi: 10.1097/DCR.0000000000001685.
13 "Survey: COVID-19 Affecting Patients' Access to Cancer Care," American Cancer Society Cancer Action Network, Apr. 17, 2020. https://www.fightcancer.org/releases/survey-covid-19-affecting-patients%E2%80%99-access-cancer-care-13 (accessed Jan. 20, 2021).
14 D. Cucinotta and M. Vanelli, "WHO Declares COVID-19 a Pandemic," Acta Biomed, vol. 91, no. 1, pp. 157–160, 2020, doi: 10.23750/abm.v91i1.9397.
15 A. K. Dwivedi, S. N. Dwivedi, S. Deo, R. Shukla, A. Pandey, and D. K. Dwivedi, "An epidemiological study on delay in treatment initiation of cancer patients," Health, vol. 04, no. 02, pp. 66–79, 2012, doi: 10.4236/health.2012.42012.
16 D. Kumar and T. Dey, "Treatment delays in oncology patients during COVID-19 pandemic: A perspective," J Glob Health, vol. 10, no. 1, doi: 10.7189/jogh.10.010367.
17 Z. Chen, W. King, R. Pearcey, M. Kerba, and W. J. Mackillop, "The relationship between waiting time for radiotherapy and clinical outcomes: A systematic review of the literature," Radiotherapy and Oncology, vol. 87, no. 1, pp. 3–16, Apr. 2008, doi: 10.1016/j.radonc.2007.11.016.
18 T. P. Hanna et al., "Mortality due to cancer treatment delay: systematic review and meta-analysis," BMJ, vol. 371, Nov. 2020, doi: 10.1136/bmj.m4087.
19 A. Brazda et al., "Delays in Time to Treatment and Survival Impact in Breast Cancer," Annals of Surgical Oncology, vol. 17, no. 3, pp. 291–296, Oct. 2010, doi: 10.1245/s10434-010-1250-6.
20 A. Eastman et al., "Outcomes of Delays in Time to Treatment in Triple Negative Breast Cancer," Ann Surg Oncol, vol. 20, no. 6, pp. 1880–1885, Jun. 2013, doi: 10.1245/s10434-012-2835-z.
21 Q. Huo et al., "Delay in Diagnosis and Treatment of Symptomatic Breast Cancer in China," Annals of Surgical Oncology, vol. 22, no. 3, pp. 883–888, Mar. 2015, doi: 10.1245/s10434-014-4076-9.
22 J Richard Sainsbury, Colin Johnston, Bob Haward, "Effect on survival of delays in referral of patients with breast-cancer symptoms: a retrospective analysis," The Lancet, vol. 353, no. 9159, pp. 1132–1135, Apr. 1999, doi: 10.1016/S0140-6736(99)02374-0.
23 J. M. McLaughlin, R. T. Anderson, A. K. Ferketich, E. E. Seiber, R. Balkrishnan, and E. D. Paskett, "Effect on Survival of Longer Intervals Between Confirmed Diagnosis and Treatment Initiation Among Low-Income Women With Breast Cancer," J Clin Oncol, vol. 30, no. 36, pp. 4493–4500, Dec. 2012, doi: 10.1200/JCO.2012.39.7695.
24 P. Murchie et al., "Effect of longer health service provider delays on stage at diagnosis and mortality in symptomatic breast cancer," The Breast, vol. 24, no. 3, pp. 248–255, Jun. 2015, doi: 10.1016/j.breast.2015.02.027.
25 M. A. Richards, P. Smith, A. J. Ramirez, I. S. Fentiman, and R. D. Rubens, "The influence on survival of delay in the presentation and treatment of symptomatic breast cancer," Br J Cancer, vol. 79, no. 5–6, pp. 858–864, Feb. 1999, doi: 10.1038/sj.bjc.6690137.
26 T. C. Romeiro Lopes et al., "Delay in Diagnosis and Treatment of Breast Cancer among Women Attending a Reference Service in Brazil," Asian Pac J Cancer Prev, vol. 18, no. 11, Nov. 2017, doi: 10.22034/APJCP.2017.18.11.3017.
27 D. W. Shin et al., "Delay to Curative Surgery Greater than 12 Weeks Is Associated with Increased Mortality in Patients with Colorectal and Breast Cancer but Not Lung or Thyroid Cancer," Ann Surg Oncol, vol. 20, no. 8, pp. 2468–2476, Aug. 2013, doi: 10.1245/s10434-013-2957-y.
28 C. I. Nagel et al., "Effect of chemotherapy delays and dose reductions on progression free and overall survival in the treatment of epithelial ovarian cancer," Gynecologic Oncology, vol. 124, no. 2, pp. 221–224, Feb. 2012, doi: 10.1016/j.ygyno.2011.10.003.
29 H. R. Withers, J. M. G. Taylor, and B. Maciejewski, "The hazard of accelerated tumor clonogen repopulation during radiotherapy," Acta Oncologica, vol. 27, no. 2, pp. 131–146, Jan. 1988, doi: 10.3109/02841868809090333.
30 D. Kumar and T. Dey, "Treatment delays in oncology patients during COVID-19 pandemic: A perspective," J Glob Health, vol. 10, no. 1, Jun. 2020, doi: 10.7189/jogh.10.010367.

31 A. Kutikov, D. S. Weinberg, M. J. Edelman, E. M. Horwitz, R. G. Uzzo, and R. I. Fisher, "A War on Two Fronts: Cancer Care in the Time of COVID-19," Ann Intern Med, Mar. 2020, doi: 10.7326/M20-1133.

32 B. R. Roman, D. Goldenberg, B. Givi, and Education Committee of American Head and Neck Society (AHNS), "AHNS Series--Do you know your guidelines? Guideline recommended follow-up and surveillance of head and neck cancer survivors," Head Neck, vol. 38, no. 2, pp. 168–174, Feb. 2016, doi: 10.1002/hed.24100.

33 World Health Organization, Ethics in epidemics, emergencies and disasters: research, surveillance and patient care : training manual. 2015.

34 NHS, "Clinical guide for the management of non-coronavirus patients requiring acute treatment: cancer," p. 9, Nov. 2020.

35 "Allocating Limited Health Care Resources," American Medical Association, 2020. https://www.ama-assn.org/delivering-care/ethics/allocating-limited-health-care-resources (accessed Jan. 20, 2021).

36 H. R. Kourie, R. Eid, F. G. Haddad, M. Scheuer, and R. Tomb, "Bioethical considerations for cancer patients care during the COVID-19 pandemic," Future Oncol, Sep. 2020, doi: 10.2217/fon-2020-0742.

37 The Lancet, "Redefining vulnerability in the era of COVID-19," Lancet, vol. 395, no. 10230, p. 1089, 2020, doi: 10.1016/S0140-6736(20)30757-1.

38 C. Melidis and M. Vantsos, "[Comment] Ethical and practical considerations on cancer recommendations during COVID-19 pandemic," Mol Clin Oncol, vol. 13, no. 3, Sep. 2020, doi: 10.3892/mco.2020.2075.

39 E. A. Gordin, A. Day, L. Stankova, E. Heitman, and J. Sadler, "Care in the time of coronavirus: Ethical considerations in head and neck oncology," Head Neck, May 2020, doi: 10.1002/hed.26272.

40 L. Zhang et al., "Clinical characteristics of COVID-19-infected cancer patients: a retrospective case study in three hospitals within Wuhan, China," Ann Oncol, vol. 31, no. 7, pp. 894–901, Jul. 2020, doi: 10.1016/j.annonc.2020.03.296.

41 J. E. Tepper, "Ethical Issues in Radiation Oncology During a Pandemic," Adv Radiat Oncol, vol. 5, no. 4, pp. 656–658, 2020, doi: 10.1016/j.adro.2020.04.037.

Original article

STUDY TO COMPARE RADIOLOGICAL IMAGING SPECTRUM OF LUNGS (RADIOGRAPHY VS CT SCAN) AMONG COVID 19 SYMPTOMATIC POSITIVE PATIENTS IN A COVID DESIGNATED TERTIARY CARE HOSPITAL IN KASHMIR, INDIA: A RETROSPECTIVE STUDY

Imran Nazir Salroo, Mohd Farooq Mir , Shazia Bashir , Ashiq Rashid Mir

Abstract

COVID-19 manifests with non-specific respiratory symptoms of variable severity, ranging from mild to life threatening, which may demand advanced respiratory assistance and artificial ventilation. The diagnosis of COVID-19 is currently confirmed by identification of viral RNA in reverse transcriptase polymerase chain reaction (RT-PCR). chest imaging has been considered as part of the diagnostic workup of patients with suspected or probable COVID-19[1.] Imaging has been also considered to complement clinical evaluation and laboratory parameters in the management of patients already diagnosed with COVID-19[2.] This Study is conducted with aim to compare radiographic features of lungs in COVID 19 symptomatic positive cases with that of CT scan features in a tertiary care COVID 19 designated hospital.

JK-Practitioner2021;26(1): 67-70

Introduction

An outbreak of pneumonia of unknown etiology occurred in Wuhan, China in December 2019. A prompt investigation confirmed that the 2019 novel coronavirus disease was responsible[3.] Human-to-human transmission of COVID-19 was confirmed to be possible, and COVID-19 rapidly spread throughout China and to other countries [4.] The disease spectrum has been shown to have specific radiological findings of bilateral, multifocal randomly scattered ground glass haze, in subpleural, mainly peripheral distribution with thickened pulmonary interstitium giving a reticular pattern, broncho-vascular prominence, and consolidation with increasing severity in the more seriously ill patients [5.] Enlarged lymph nodes are typically absent and pleural effusion is extremely rare. These findings are pretty much the same on CT scan and X-ray, the only difference being that CT picks the more subtle signs of disease because of its greater inherent spatial and contrast resolution detection range [6.] Italian and British hospitals are beginning to use chest radiography as a first-line triage tool because of long turn around times for real-time reverse transcription polymerase chain reaction (RT-PCR) as diagnostic test for severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2.[7.] Early diagnosis of COVID-19 is crucial for disease treatment and control. Compared to RT-PCR, chest CT imaging may be a more reliable, practical and rapid method to diagnose and assess COVID-19, especially in the epidemic area, Chest CT, a routine imaging tool for pneumonia diagnosis, is fast and relatively easy to perform. Recent research found that the sensitivity of CT for COVID-19 infection was 98 percent compared to RT-PCR testing sensitivity of 71 percent.

For the current study, researchers at Tongji Hospital in Wuhan, China, set out to investigate the diagnostic value and consistency of chest CT imaging in comparison to RT-PCR assay in COVID-19(8). Early radiologic investigations consistently reported that the typical computed tomography (CT) findings of COVID-19 pneumonia were bilateral ground-glass opacities (GGOs) and consolidation with a peripheral and

Author Affiliations

Imran Nazir Salroo,
Shazia Bashir, Lecturers
Mohd Farooq Mir,
Associate Professor,

Department Radiodiagnosis and Imaging ,SKIMS Medical College

Ashiq Rashid Mir, Surveillance Medical Officer, Kashmir and Ladakh Division,WHO. J&K, INDIA.

Correspondence
Dr Ashiq R Mir
MD Community Medicine
Surveillance Medical Officer
Kashmir & Ladakh Divisions
World Health Organization(WHO)
Tel:8277517712
Email leoashiq@gmail.com

Indexed
Scopus,INDMED ,EBSCO & Google Scholar among others

Cite this article as:
Salroo IN ,Mohd Mir MF , Bashir S , Mir AR.Study To Compare Radiological Imaging Spectrum Of Lungs (Radiography Vs Ct Scan) Among Covid 19 Symptomatic Positive Patients In A Covid Designated Tertiary Care Hospital In Kashmir, India: A Retrospective Study.JK Pract 2021;26(1): 66-70

Full length article available for download at **jkpractitioner.com** two months after publication

Key Words:

COVID 19, CT scan, Radiography.

posterior lung distribution [9].The current publications on this topic remains unknown how COVID-19 pneumonia appears on chest radiographs and CT images of patients in Kashmir Division. Therefore, we present a preliminary report on the chest radiographic and CT findings of COVID-19 pneumonia in a tertiary care hosipital which received patients across the valley.

Materials and Methods

A retrospective cross sectional study was conducted at SKIMS Medical College and Hospital which is one among three COVID designated hospitals in Kashmir. It received COVID 19 positive patients across the Kashmir. Positive cases were admitted in wards and investigated as per protocol. Patients were discharged once cases turned negative on conformation with RT-PCR.

Study population: All symptomatic positive cases who were admitted in SKIMS Medical College and Hospital.

Inclusion criteria: All the COVID 19 symptomatic positive patients who were admitted in SKIMS MCH including those who were referred from other centers.

Exclusion Criteria: Pregnant patients, Patients who had contraindications to either radiography or CT scans, Patient who had undergone radiography or CT scan from other center before admission were excluded.

Study period: Patients admitted from 1st April 2020 to November 31st 2020.

Sample size: All patients admitted during the study period which is around 112 in number.

Method of data collection: Purposive sampling method was used to select all patients who were symptomatic and admitted between the study period. Their radiographic and CT films were reviewed by investigators and findings were noted.

Methodology for data analysis: Data was entered onto a computerized excel spread sheet and subsequently analyseed using Epi info version 3.5.3 and presented in the form of tables and other graphical representation.

Statistical methods: descriptive statics of mean and proportions were applied. Fishers exact test was used to compare the proportions. Chi square test was used to study statistical significance.

Results:

Table 1: Socio demographic characteristics of study participants

Gender		%
Male	63	56
Female	49	44
Residence		
Rural	24	23
Urban	86	77
Age Distribution		
0-20	11	10
21-40	54	49
41-60	28	25
61-80	16	15
>80	2	1
Patient Status		
Cured	108	97
Died	4	03

Table 2:Per-Lesion Analysis of Chest Radiographic Findings

Radiographic Features	Number	%
Laterality		
Right lung	58	52
Left lung	54	48
Cephalocaudal distribution		
Upper lung zone	22	20
Middle lung zone	36	32
Lower lung zone	54	48
Central to peripheral distribution		
Central half	20	18
Peripheral half	69	62
Central and peripheral	22	20
Shape		
Patchy 9 (90)	98	88
Nodular 1 (10)	12	12
Density		
Consolidation	95	85
Ground-glass lesion	17	15

Table 3 :Per-Lesion Analysis of Chest Computed Tomography Findings

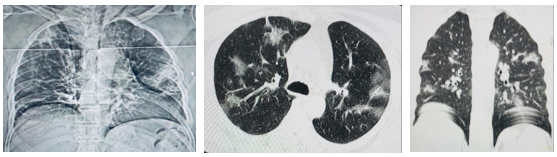
Analysis of Chest Computed Tomography Findings	Number	%
Density		
Pure GGO	34	30
Mixed GGO & Consolidation	61	55
Consolidation	09	8
Crazy Paving appearence	11	10
Shape		
Wedge	45	40
Elongated	39	35
Confluence	28	25
Margins		
Ill Defined	74	66
Well defined	38	34
Predilection for particular Location		
Lower lobe involvement	67	60
Pleural Attachment	86	77
Brocho vascular bundle	28	25
Internal characteristics Findings		
Air Brocnhogram	40	33
Reversed Halo Sign	07	6
Cavity		0

Table 4: Comparison between Radiographic and CT scan findings in identifying features related to COVID 19

Positive for any sign	positive	Negative
Radiograph	54%	46%
CT Scan	82%	18%

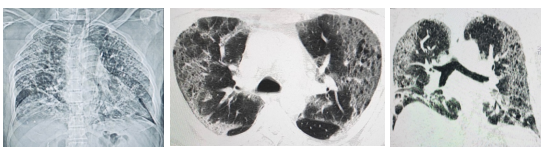
Radiographic findings showed that 52% cases had Rt Lung predominance. 48% of those who had positive radiographic features had lower lung zone distribution. 62% had peripheral distribution. Patchy shape was most common finding in 88% of cases who had positive features on radiograph. 88% of pts showed consolidations of radiograph among those who had signs visible on Xray.

CT scan picked positive findings in 82% of cases as compared to 54% on radiograph. This was statetically significant with Fishers Exact test(,0.005) Among CT findings, 55% had mixed GGO with consolidations. 40% had wedge shaped consolidation while 66% had ill defined margins. 77% had pleural attachment while 33% had internal characteristics of air Brinchogram.



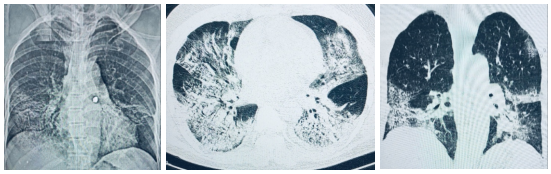
(A) (B) (C)

Fig. 1. Representative chest radiographic (A) and CT images (B, C) of COVID-19 pneumonia manifesting as pure ground-glass opacities on CT.
A. Anteroposterior chest radiograph shows patchy peripheral ground-glass opacities in right upper and middle lobe and apicoposterior segment of left upper lobe. B, C. Axial and coronal chest CT images show patchy pure ground-glass opacities involving both lungs.



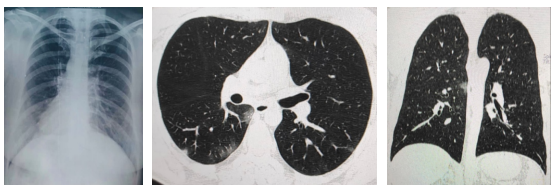
(A) (B) (C)

Fig. 2. Representative chest radiographic (A) and CT images (B, C) of COVID-19 pneumonia manifesting as confluent pure ground-glass opacities on CT.
A. Anteroposterior chest radiograph shows confluent peripheral ground-glass opacities in bilateral upper, mid and lower lung zones. B, C. Axial and coronal chest CT images show confluent ground-glass opacities involving both lungs.



(A) (B) (C)

Fig. 3. Representative chest radiographic (A) and CT images (B, C) of COVID-19 pneumonia manifesting as confluent mixed ground-glass opacities and consolidation on CT.
A. Anteroposterior chest radiograph shows confluent ground-glass opacities in bilateral lungs, except for bilateral upper lung zone. B, C. Axial and coronal chest CT images show confluent mixed ground-glass opacities and consolidative lesions in peripheral bilateral lungs. Discrete patchy consolidation is noted in left lingular segments along bronchovascular bundles.



(A) (B) (C)

Fig. 4. Representative chest radiographic (A) and CT images (B, C) of COVID-19 pneumonia manifesting as radiograph-negative multiple patchy mixed ground-glass opacities.
A. Anteroposterior chest radiograph shows normal bilateral lung fields. B,C. Axial and coronal chest CT image shows multiple ground-glass opacities.

Discussion:

COVID-19 pneumonia shows radiologic similarities to SARS and MERS pneumonia (10-14), with a predominance of bilateral GGO and consolidative lesions in the peripheral lung. Despite the similarities in CT findings, COVID-19 pneumonia seems radiologically milder than SARS and MERS pneumonia [10]. Our study showed x ray had positive findings in 54 % cases which is higher than a study in MERS and study in Korean which had 33% positive signs on Radiograph [11]. However this was similar to the study in china[12]. This can be attributed to the policy where asymptomatic cases were kept in home isolation while mild – severe cases were admitted in the hospital where study was

done. GGO lesions on CT without any consolidation were presented in 55% of our cases and in 45–67% of Chinese COVID-19 patients in a study done in china which is similar to out study[13]. Resersed Halo sign was seen in only 6% of cases which may have been attribute to other lung infection present at the time of COVID 19. There were similar finding in Korean study[14]. The reversed halo sign was first regarded as specific for cryptogenic organizing pneumonia, and it can be seen in various infectious diseases, including angioinvasive pulmonary aspergillosis or mucormycosis, paracoccidioidomycosis, pneumocystis jiroveci pneumonia, and tuberculosis[15]. This sign may be present in covid 19 cases as well [16].

Conclusion:

CT scan is better modality for diagnosis of COVID 19 cases as compared to chest radiograph. Most features are ambigious on radiograph while CT findings of Mixed GGO . Consolidative lesions in the bilateral peripheral posterior lungs. The shape of the lesions was typically ill-defined and patchy to confluent, or nodular. Patchy to confluent lesions were primarily distributed along the pleura. These are some of the features which clinicians should be trained so as to initiate treatment in absence of RT PCR report which takes time.

Conflict of Interest: None

References

1. Manna S, Wruble J, Maron S, et al. COVID-19: a multimodality review of radiologic techniques, clinical utility, and imaging features. Radiol Cardiothorac Imaging. 2020 June 1; 2(3): [issue being compiled] (https://pubs.rsna.org/doi/10.1148/ryct.2020200210, accessed 3 June 2020).
2. Clinical management of COVID-19. Interim guidance. Geneva: World Health Organization; 27 May 2020 (https://www.who.int/publications-detail/clinical-management-of-covid-19, accessed 28 May 2020).
3. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al.; China Novel Coronavirus Investigating and Research Team. A novel Coronavirus from patients with pneumonia in China, 2019. N Engl J Med 2020;382:727-733.
4. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel Coronavirusinfected pneumonia. N Engl J Med 2020 Jan 29 [Epub]. https://doi.org/10.1056/NEJMoa2001316.
5. Wong HYF, Lam HYS, Fong AH, Leung BT, Chin TW, Lo CHY, et al. Frequency and distribution of chest radiographic findings in COVID 19 positive patients. Radiology. 2020:201160. doi: 10.1148/radiol.2020201160
6. Sohail S. Rational and practical use of imaging in COVID-19 pneumonia. Pak J Med Sci. 2020;36(COVID19-S4):COVID19-S130-S133. doi: https://doi.org/10.12669/pjms.36.COVID19-S4.2760.
7. . Lessons from the frontline of the covid-19 outbreak - The BMJ. https://blogs.bmj.com/bmj/2020/03/20/lessons-from-the-frontline-of-the-covid-19-outbreak/?utm_campaign=shareaholic&utm_medium=twitter&utm_source=socialnetwork. Accessed March 22, 2020
8. Tao Ai, Zhenlu Yang, Hongyan Hou, Chenao Zhan, Chong Chen, Wenzhi Lv, Qian Tao, Ziyong Sun, Liming Xia. Correlation of Chest CT and RT-PCR Testing in Coronavirus Disease 2019 (COVID-19) in China: A Report of 1014 Cases. Radiology. Published Online: Feb 26 2020. https://doi.org/10.1148/radiol.2020200642. Accessed Feb 26, 2020.
9. Hansell DM, Bankier AA, MacMahon H, McLoud TC, Müller NL, Remy J. Fleischner Society: glossary of terms for thoracic imaging. Radiology 2008;246:697-722
10. Yoon et al, Chest Radiographic and CT Findings of the 2019 Novel Coronavirus Disease (COVID-19): Analysis of Nine Patients Treated in Korea, Korean J Radiology, 2020;21(4):494-500 https://doi.org/10.3348/
11. Ajlan AM, Ahyad RA, Jamjoom LG, Alharthy A, Madani TA. Middle East respiratory syndrome Coronavirus (MERSCoV) infection: chest CT findings. AJR Am J Roentgenol 2014;203:782-787.
12. Ng MY, Lee EYP, Yang J, Yang F, Li X, Wang H, et al. Imaging profile of the COVID-19 infection: radiologic findings and literature review. Radiology: Cardiothoracic Imaging 2020;2:e200034
13. Wong KT, Antonio GE, Hui DS, Lee N, Yuen EH, Wu A, et al. Thin-section CT of severe acute respiratory syndrome: evaluation of 73 patients exposed to or with the disease. Radiology 2003;228:395-400.
14. Fang Y, Zhang H, Xu Y, Xie J, Pang P, Ji W. CT manifestations of two cases of 2019 novel Coronavirus (2019-nCoV) pneumonia. Radiology 2020 Feb 7 [Epub]. https://doi.org/10.1148/radiol.2020200280
15. Godoy MC, Viswanathan C, Marchiori E, Truong MT, Benveniste MF, Rossi S, et al. The reversed halo sign: update and differential diagnosis. Br J Radiol 2012;85:1226-1235.
16. . Kong W, Agarwal PP. Chest imaging appearance of COVID-19 infection. Radiology: Cardiothoracic Imaging 2020;2:e200028.

SUBMISSION CHECKLIST

Please make sure you have satisfied the points on the following checklist before submitting your manuscript.

1. Email addresses

Do you have a list of the email addresses for all the co-authors of the manuscript? You will need to provide these so that we can inform the co-authors when the manuscript has been received and when it is published.

2. Instructions for Authors , peer reviewers and editorial board selection

Have you read the detailed Instructions for Authors and are aware of the peer review and selection process.

3. Covering letter

Have you prepared a covering letter for your submission

4. Manuscript files

Do you have all the files for the manuscript in an acceptable format

5. Article-processing charges

An article processing charges are payable for articles accepted for publication in JK-Practitioner

6. Are you one of the authors of this article?

If not, you cannot submit the article on behalf of the authors. As part of the submission process you will assign a corresponding author for the article, and this can be yourself or a co-author Once the manuscript is submitted the contact author takes responsibility and receive correspondence sent throughout the peer review and production process.

7. Conditions of submission and JK-Practitioner Copyright and License Agreement

Do you confirm that all the authors of the manuscript have read and agreed to its content and are accountable for all aspects of the accuracy and integrity of the manuscript in accordance with ICMJE criteria? Do you confirm that you have ethical approval for any human or animal experimentation ? Do you confirm that the manuscript is original, has not already been published in a journal and is not currently under consideration by another journal? By submitting the manuscript , you are confirming these points and agreeing to these and all other terms of the JK-Practitioner Copyright and License Agreement

Yes, I am the submitting author of this article and I accept the conditions of submission and the JK-Practitioner Copyright and License Agreement.

Authorship Form

Each author should meet all criteria below (A, B, C, and D) and should indicate general and specific contributions by reading criteria A, B, C, and D and checking the appropriate boxes.

A. I certify t hat

• The manuscript represents original and valid work and that neither this manuscript nor one with substantially similar content under my authorship has been published or is being considered for publication elsewhere, except as described in the journal's submission form and cover letter submitted with the manuscript, and copies of closely related manuscripts have been provided; and I agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved; and If requested, I will provide the data or will cooperate fully in obtaining and providing the data on which the manuscript is based for examination by the editors or their assignees; and For papers with more than 1 author, I agree to allow the corresponding author to serve as the primary correspondent with the editorial office, to review the edited manuscript and proof, and to make decisions regarding release of information in the manuscript to the media, federal agencies, or both; or, if I am the only author, I will be the corresponding author and agree to serve in the roles described above.

B. I have given final approval of the submitted manuscript.

C. I have participated sufficiently in the work to take public responsibility for (check 1 of 2 below)

- part of the content
- the whole content.

D. To qualify for authorship, you must check at least 1 box for each of the 3 categories of contributions listed below.

I have made substantial contributions to the intellectual content of the paper as described below.

1. Check at least 1 of 2 below
- conception or design
- acquisition, analysis, or interpretation of data

2. Check at least 1 of 2 below
- drafting of the manuscript
- critical revision of the manuscript for important intellectual content

3. Check at least 1 below
- statistical analysis
- obtaining funding
- administrative, technical, or material support
- supervision
- no additional contributions
- other

Acknowledgement Statement. Authors should obtain written permission from all individuals named in an Acknowledgment, since readers may infer their endorsement of data and conclusions. The corresponding author must check the following box:

A. I certify that all persons who have made substantial contributions to the work reported in this manuscript (eg, data collection, analysis, writing or editing assistance) but who do not fulfill the authorship criteria are named, along with their specific contributions in an Acknowledgment in the manuscript and all such persons have provided me with written permission to be named.

Confirmation of Reporting of Funding and Conflicts of Interest. Please check A and B. Also check C or D.

I certify that all funding, or other financial support, and material support for this work are clearly identified in the manuscript.

B. I have completed the ICMJE for Disclosure of Potential Conflicts of Interest (available at http://www.icmje.org) and will submit it to JK-Practitioner

C. I certify that all my potential conflicts of interest (as reported in the ICMJE), are disclosed in the Acknowledgment section of the manuscript.

OR

D. I have no potential conflicts of interest.

DECLARATION UNDER SECTION 5 OF THE PRESS AND REGISTRATION BOOKS ACT OF ACT OF 1967 AS A AMENDED FROM (SEE RULE 1)

TITLE	**:**	**JK-PRACTITIONER**
PLACE OF PUBLICATION	**:**	**SRINAGAR**
PERIODICITY OF PUBLICATION	**:**	**QUARTERLY**
PUBLISHER'S NAME	**:**	**DR. G. M. MALIK**
WHETHER CITIZEN OF INDIA	**:**	**YES**
ADDRESS	**:**	**JHELUM MARKET, BATMALOO SRINAGAR 190010, KASHMIR INDIA**
EDITOR'S NAME	**:**	**DR. G.M. MALIK**
WHETHER CITIZEN OF INDIA	**:**	**YES**
ADDRESS	**:**	**JHELUM MARKET, BATMALOO SRINAGAR 190010, KASHMIR INDIA**

PARTICULARS OF OTHER INDIVIDUALS WHO ARE OWNERS/SHARE HOLDERS OF NEWSPAPER

I Dr. G.M. Malik declare that the particulars given above are true to the best of my knowledge and belief.

Sd/-
G.M. Malik

Appeal for Donation

INDIAN MEDICAL ASSOCIATION

Jammu and Kashmir State Branch, Srinagar

Telephones: 0194-2431735, Cell : +91- 9419007422,
e-mail: mna2000@rediffmail.com

STATE PRESIDENT
Prof. (Dr.) G.M. Malik
Cooperative Colony
Peerbagh Srinagar-190014 Kashmir.
Cell: +91-9419007198
e-mail. drgmmalik70@gmail.com

HONY. STATE SECRETARY
Prof. (Dr.) Mir Nazir Ahmed
Mir Manzil, Hyderpora Byepass
Srinagar-190014 Kashmir.
Cell: +91-9419007422
e-mail. mna2000@rediffmail.com

HONY. STATE FINANCE SECRETAR
Prof. (Dr.) Muhammad Latif
Gulshan Nagar, Nowgam,
Srinagar, Kashmir.
Cell: +91-9419007878
e-mail. lateef_chesti20@yahoo.in

Dr/Prof

DONATION

For

Kashmir IMA House (under construction)

We are pleased to inform you that the ground floor of Kashmir IMA house at GMC boys hostel complex at Bemina is completed and first floor is under construction. We plan to start construction of an auditorium in the second floor. For this we need huge amount of money for which we bank on your donations.

As such you are requested to donate generously and send your ***donations*** by transfer/ account payee cheque, favouring IMA house account. (Details given below) at Jammu &Kashmir bank, GMC branch, Srinagar.

Account no.:- 0349040100026512-SB
MIER code: - 190051023
IFC code: - JAKAODOCTOR

Your payment will be duly acknowledged. With profound regards and renewed wishes.

Sd/=
Dr GM Malik
(President)

Sd/=
Dr Mir Nazir Ahmed
(General secretary)

Dr Muhammed Latif
(Hony Finance secretary)

SECRETARAIT
Department of Social & Preventive Medicine
Govt. Medical College, Srinagar(KMR)
Phone No :- 0194 -2503099
Cell No.:- 9419013689

ADDRESS FOR CORRESPONDENCE
Mir Manzil Hyderpora Bypass-8
Srinagar 190014, Kashmir
Phone :- 0194-243735,Cell 9419007422

DR. MALIK
Diagnostic Centre & Laboratory

OPPOSITE JVC HOSPITAL (SKIMS M.C.) GATE NEAR BUS STAND BEMINA, SRINAGAR, KASHMIR

It gives us pleasure to inform our doctors, paramedical, nursing professionals, patients/public that we have started a state of art laboratory From jan 2013 which will provide all routine & specialized tests like:

A Special
Modern / Advanced Clinic
Pathological Laboratory
in City

A.1. **Biochemistry, Serology, harmone assays 2. hematology 3. Cytology, Pathology, Immunology under guidance of experts doctors, Sr. qualified technologists etc.**

B. **The lab is fully equipped latest machines form sysmax (Japan) and Erba-Chem. (Germany), Transasia (India), Microscopes (Olympus, Japan) & from reputed companies of India.**

C. **All the measues and guideline for providing the best, hygienic services are followed.**

D. **A prompt reporting & other information facilities are provided by our staff.**

E. **For advance/costly test we have collabration with reputed national laboratory at Delhi.**

F. **Facilities for FNAC/ Histopathology are available at any time with reporting in shortest time.**

G. **Beside GIT Endoscopy etc by senior and reputed Consultant in GIT endoscopy tyrained in USA/India with 30 yrs experience in this field here and abroad has been started.**

H. **This one of the first modern laboratory on north area of Srinagar City near SKIMS-MC (JVC) Hospital Bemina.**

Note : Facilities for collection of samples from doctor clinic will be arranged if requested.

Contact No's
for Help/Information

1 Mobile :09596211965,09419007198
2 Office/Lab.i/c :09697454515,Residence: 0194-2432060

SD/Director
Malik Diagnostic Centre, Bemina Srinagar