Degree	Year	Name of College & University	Registration number with date of registration	Name of State Medical council
MBBS	1999	GRMC, Gwalior Jiwaji University, Gwalior	MP 3432 31/07/2000	MP State, MCI
MD/MS	2005	GRMC, Gwalior Jiwaji University, Gwalior	MP 3432 06/10/2005	MP State, MCI

Original Article

Preoperative Predictors of Mortality in Patients with Perforation Peritonitis

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Abstract

Background: Perforation peritonitis is the most common surgical emergency in India. Despite advances in surgical techniques, antimicrobial therapy and intensive care support, management of peritonitis continues to be highly demanding, difficult and complex. The spectrum of etiology of perforation continues to be different from that of western countries and there is paucity of data from India regarding it's etiology, prognostic indicators, morbidity and mortality patterns. **Aims and Objective:** Our research sought to show the variety of perforation peritonitis that we encountered at the LLRM Medical College and Hospital Meerut as Despite the fact that perforation peritonitis has implications that contemporary surgeons cannot avoid but by applying preoperative predictors effectively, they can diagnose a patient's condition and reduce the mortality burden on society. **Materials and Methods:** Seventy consecutive patients admitted to LLRM MEDICAL COLLEGE MEERUT with perforation peritonitis, of age more than 12 years scheduled for emergency laparotomy were studied prospectively. The parameters studied were age and sex of the patients, history of chronic smoking ,duration of symptoms, SBP, pulse rate, respiratory rate, oxygen saturation on presentation ,delay in initiating surgical intervention, and preoperative biochemical parameters such as hemoglobin and serum creatinine. In hospital mortality was taken as the outcome. **Results:** We encountered a mortality of 24.28% in our study. Multiple linear (enter) re[illegible] identified the age, duration of symptoms, SBP on presentation, SPO2 on presentation respiratory rate on presentation, serum creatinin[illegible] and the delay in instituting surgical intervention as independent predictors of mortality. **Conclusion:** Routine biochemical investigation[illegible] in presentation and surgical intervention are good predictors of mortality. Recognizing such patients early with risk stratification and providing early goal-directed therapy can improve the outcome.

Keywords: Mortality, perforation, peritonitis, predictor

Introduction

The most frequent surgical emergency in the world is peritonitis brought on by a perforation of the gastrointestinal system. An abnormal opening in a hollow organ or viscus is known as a perforation.[1] It comes from the Latin word *perforatus*, which means "to bore through." The etiology of perforation differs across developing and developed nations, and there is a scarcity of data from India on its etiology, prognostic markers, and morbidity and mortality rates. The signs and symptoms of nearly all perforation peritonitis cases are typical, and all patients can be clinically diagnosed with peritonitis. Computed tomography (CT) scan, wholeabdomen ultrasound, and chest and abdomen X-rays are the tests that can confirm the diagnosis. The most common symptom of peritonitis is an acute abdomen. Despite improvements in surgical methods, antimicrobial therapy, and intensive care support, peritonitis management remains extremely demanding, challenging, and complex.[2] The majority of these patients arrive late and with septicemia, which raises the fatality rate.[3] The incidence of different types of perforation varies, despite improvements in critical care and aggressive surgical methods. Recent studies estimate an operational death rate ranging from 10% to 30%. The frequency and incidence of gastrointestinal perforation vary regionally. Due to low-socioeconomic position and a stressful way of life, upper gastrointestinal pathology is more prevalent in developing countries like Asia. Large bowel

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pathology is more prevalent in Western countries as a result of lifestyles and dietary choices and genetic susceptibility.[4-7] Most research was conducted in developed countries with distinct lifestyles and health-care systems, but we conducted our study in a government facility in India with a significant proportion of low-socioeconomic patients who are frequently malnourished and fail to follow-up. Most of the time, patients with peptic ulcer perforation are in a state of septicemia, so according to the surviving sepsis campaign, these patients might benefit from a perioperative care protocol with early source control and early goal-directed therapy.[3] Various factors have been used previously to reflect the severity of sepsis, as markers of mortality. The most commonly associated are age, serum creatinine levels, SpO_2 level, blood pressure, pulse rate various scoring indices such as the Acute Physiology and Chronic Health Evaluation score,[7] the Boey score, the simplified acute physiology score, and the Mannheim peritonitis index have been introduced to stratify the risk in such patients.[5-7]

Although perforation peritonitis has consequences that modern surgeons cannot avoid, by appropriately using preoperative predictors, they can diagnose an appropriate condition of the patient and lessen the mortality burden on society. Our study aimed to demonstrate the range of perforation peritonitis that we experienced at the LLRM Medical College and Hospital Meerut.

Materials and Methods

Study setting

A retrospective observational study was conducted in the emergency room at LLRM Medical College.

Study duration

A retrospective analysis of 70 patients with perforation peritonitis was conducted over a year.

Study design

This was retrospective cohort study.

Sample size

Seventy patients were included in this study with perforation peritonitis signs and symptoms, all patients were admitted to the emergency room at LLRM Medical College and SVBP Hospital.

Data collecting method

In this retrospective study, patients who presented to the surgery departments at LLRM Medical College and SVBP Hospital with a clinical suspicion of perforation peritonitis were included in the study.

- Patients underwent in-depth physical examinations and case studies included full histories of the patients
- Patients underwent the required tests
- Urine analysis, biochemical testing, and blood counts. Ultrasonography pelvis/abdomen CT-abdomen (as and when required) surgery was performed on all patients who had been diagnosed
- The outcome was assessed based on clinical, surgical, and radiological results.

Inclusion criteria

All cases of peritonitis owing to intestinal perforation admitted to the emergency rooms of the SVBP Hospital in Meerut and the LLRM Medical College throughout the study were included in the analysis.

Exclusion criteria

- Any instance of perforation peritonitis brought on by penetrating trauma is an exclusion criterion
- During hospital admission, patients vanished or were dismissed against the medical recommendation
- Primary peritonitis affects every patient
- Following elective surgery, perforation peritonitis affected every patient
- Patients who are younger than 12 years old.

Data analysis

Results are expressed as mean and standard deviation for continuous data and frequency as number and percentage. An unpaired t-test was used to compare mean levels between the two groups. Categorical data were analyzed by the Chi-square test and Fischer's exact test. A value of 0.05 or less was considered for statistical significance.

Ethical issues

Ethical committee clearance was taken.

Guideline for reporting

All the standard guidelines were followed.

Results

Of 100 patients admitted to the emergency rooms of the SVBP Hospital and the LLRM Medical College, 70 patients met the criteria for inclusion and were monitored from September 2018 to August 2019.

Age

The mean age of perforation in our sample of 70 patients was 40.18 years. The age range with the highest prevalence

Table 1: Comparing age group

Age (years)	Cases	Expiry	Percentage
13–20	4	1	25
21–30	20	2	10
31–40	11	2	18.18
41–50	19	5	26.31
>50	16	7	43.75

Table 2: Sex-wise distribution of patients

Sex	Total patient	Expiry	Percentage
Male	55	13	23.64
Female	15	4	26.67

rates >100/min at presentation, of whom 17 (32.69%) patients died. In contrast, 18 out of the 70 patients with pulse rates <100/min at admission did not die. A symptom of septicemia is tachycardia, which is brought on by inflammatory mediators that cause fluid to leak into the peritoneal cavity and create hypovolemia. To sustain cardiac output for tissue oxygenation, this causes tachycardia. In addition, peritonsillitis causes the release of adrenal hormones, which also causes tachycardia. Researchers in other studies have reported a pulse rate correlation pattern that is comparable to the one we found in our study.[7,8,9]

Mortality and SpO_2 have a correlation

In our investigation, we discovered that patients with SpO_2<92% at the time of presentation had a greater fatality risk. It gets worse as the patient gets older. Forty-six patients had SpO_2>92% at the time of presentation and 1 patient died (2.17%) of them, whereas 24 out of 70 patients had SpO_2<92% at the time of presentation. The majority of perforated peritonitis patients underwent operations while under general anesthesia. Following surgery, a large number of patients who arrived in poor health due to their chest must remain on a ventilator for an extended period. This can increase the risk of pneumonia from the ventilator and aggravate the patient's chest condition, which raises mortality. Numerous factors, such as the patient's age, the effects of general anesthesia, the length of the procedure, and a history of any other respiratory or cardiac conditions, are connected to poor chest conditions in surgical patients and have an impact on the outcome. All of these factors affect the patient's unfavorable result in perforation peritonitis. Researchers have shown a positive correlation between mortality and SpO_2 in numerous studies.[6,10]

Mortality and serum creatinine correlation

In our study, we observed that 20 patients had blood creatinine levels >2.00 mg/dl, of which 13 (65%) patients died, whereas 50 out of 70 patients had serum creatinine levels ≤2.00 mg/dl. Thus, a patient's fate after perforation peritonitis is impacted by a higher creatinine level. A majority of researchers agreed with this key finding. However, the range varied with certain studies; some chose the same range as we did, whereas others took a different approach. Nevertheless, each study's conclusion was the same.[6,9,10]

Conclusion

The current study is an observational analysis of numerous variables influencing the course of perforation peritonitis patients. When these factors are evaluated at presentation, it is possible to identify patients who require intensive care and change the decision-making process to one that includes early preoperative evaluation, aggressive measures to restore normal homeostasis, early surgery, and watchful postoperative care.

In the end, our investigation led us to the conclusion that the patient's delayed admission to the hospital was a significant factor in the patient's poor prognosis for perforation peritonitis. The death rate for these patients increases by 40% if they present later than 24 h after the commencement of their symptoms. Much research supports the findings of our investigation, including Kamble *et al.*[12] who found that mortality rose by 32% in patients who presented after 24 h of the onset of symptoms. Other indicators that strongly predict death (each significant at 5%) include tachycardia, tachypnea, hypotension, anemia, impaired renal function, septicemia, level of contamination, size, and number of perforations.[7,8] Therefore, mortality can be decreased if patients exhibiting the aforementioned symptoms can be identified quickly and treated appropriately. Therefore, there is a need to inform medical staff at peripheral centers about this illness and to setup a referral system unit with the necessary equipment so that these patients can get to tertiary care facilities as soon as feasible. Thus, the cornerstones of care in patients with perforation peritonitis continue to be early detection, quick resuscitation, and surgical intervention.

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Conflicts of interest

There are no conflicts of interest.

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ORIGINAL RESEARCH

A Prospective comparative study of single layer vs double layer hand sewn intestinal anastomosis

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ABSTRACT

Background: Patients undergoing resection anastomoses for various causes like bowel obstruction, incarcerated hernias, benign and malignant tumors of small and large bowel is not so uncommon. This comparative study endeavours to compare outcome of single layer versus double layer intestinal anastomosis in small and large bowel in terms of duration required to perform intestinal anastomosis, post operative complications like anastomotic leak, duration of hospital stay in each group.

Materials & Methods: The patients selected for this study are those who were admitted with various clinical conditions requiring resection and anastomosis of small and large bowel.

Results: The maximum number of patients in group A (single layer) were in the age group of 31-40 years i.e. 08 (32%) and in group B (double layer) maximum number of patients were in the age group of 41-50 years i.e. 09 (36%). In group A (single layer) there were 17 (68%) males and 08 (32%) females. In group B (Double layer) there were 15 (60%) males and 10 (40%) females. In our study of fifty cases in both groups terminal ileal stricture was diagnosed in maximum number of patients i.e. 13 (26%) cases. In our study of fifty cases in both groups, resection of terminal ileum and ileoileal anastomosis was performed in maximum number of patients i.e. 21 (42%) cases. Three different types of anastomosis all together in both groups depending up on the position of the viscera. In both the groups end to end type of anastomosis was done in all of the cases, i.e. in group A (single layer) 25 (100%) patients and in group B(double layer) 25(100%) patients. No side to side type of anastomosis or end to side anastomosis was performed in either of groups

Conclusion: Duration required to perform a single layer intestinal anastomosis is significantly lesser when compared to double layer.

Key words: intestinal anastomosis, Double layer, Gastrointestinal anastomosis

Introduction

Gastrointestinal anastomosis has been excited interest in our day to day surgical practice and aim of anastomosis is to make a sound alignment of bowel through which the contents will pass in as early as possible.[1] Patients undergoing resection anastomoses for various causes like bowel obstruction, incarcerated hernias, benign and malignant tumors of small and large bowel is not

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Discussion

The present study assessed the efficacy and safety of single layered anastomosis in comparison with double layer anastomosis after intestinal resection and anastomosis. The study included two groups single layer and double layer, each group had 25 cases altogether 50 cases. Cases were allotted to either group alternatively, requiring single layer anastomosis and double layer anastomosis for various clinical conditions of small and large bowel. Anastomosis was done at different levels of intestine and depending up on the position of the viscera. The efficacy of both groups were compared in terms of duration required to perform single and double layered intestinal anastomosis, study post operative complications like anastomotic leak in single and double layered intestinal anastomosis, the outcome associated with single and double layered anastomosis and the duration of hospital stay in either of them.

In present series mean age in group A (single layer) was 41.4 years and in group B (double layer) 41.32 years. In Gangat series[9] mean age in group A (single layer) was 37.5 years and in group B (double layer) 40.2 years.

In Khan RAA series[10], the arithmetical mean duration required to perform an anastomosis procedure was 20 minutes for single layer and 35 minutes for double layer. In Burch ET series duration required to perform a single layer anastomosis was 20.8 minutes and 30.7 minutes for double layer. In our study the mean duration required to construct a single layer anastomosis was 19.04 minutes and 28.80 minutes for double layered anastomosis. The difference in average time is statistically significant as p value <0.001HS in present series. Therefore, in our series the time required to perform anastomosis is well within the average time.

The complication rate in our present series was 1 (4%) patient in single layer and 2 (8%) in double layered anastomosis. In Khan RAA series[10] one (6%) patient had anastomotic leak in single layer and 2 (12%) of patients had anastomotic leak in double layer. Finally, complication rates put all together double layer had more complication in terms of anastomotic leak in both series.

Anastomotic leak is the most feared early complication of intestinal anastomosis. The healing of intestinal anastomosis is broadly divided into three phases: the inflammatory phase, the fibroplasia phase, and the remodelling phase. During the inflammatory phase, the integrity of anastomosis is dependent on mechanical strength provided by sutures. The inflammatory phase is followed by the fibroplasia phase around postoperative days 5-7, characterized by a switch from collagen degradation to collagen deposition that gives strength to anastomosis. Any systemic or local factor that causes delay in transition from inflammatory phase to fibroplasia phase can result in poor healing and anastomotic leak. Systemic conditions that increase the risk of anastomotic leak are anemia, diabetes mellitus, malnutrition with hypoalbuminemia, vitamin deficiencies, and steroid therapy. Local factors such as the presence of irradiated bowel, anastomosis involving disease-affected bowel, and inadequate blood flow are associated with delayed healing and contributes to anastomotic leak.[11]

Anastomotic leak presenting on postoperative day 1 or 2 is invariably due to technical reasons. Anastomotic leak secondary to interference in the normal healing mechanism usually presents around the end of the first postoperative week. Anastomotic leak can present either as frank peritonitis when the leak is uncontrolled or as localized intra-abdominal collection/abscess if the leak is controlled. An uncontrolled leak with diffuse peritonitis is associated with high morbidity and mortality and requires re-exploration. During relaparotomy, a thorough lavage of the peritoneal cavity should be carried out. In most circumstances, it is better to dismantle the anastomosis and bring the bowel loops as stoma. A controlled leak presenting with a localized intra-abdominal abscess can effectively managed conservatively by means of percutaneous drainage of the abscess under imaging guidance and antibiotics.[12]

Conclusion

Authors found that duration required to perform a single layer intestinal anastomosis is significantly lesser when compared to double layer. There is no significant difference in anastomotic leak between two groups. There is no significant difference in duration of hospital stay in single vs double layered bowel anastomosis. There is no significant difference in occurrence of short- term intestinal obstruction in single vs double layered bowel anastomosis.

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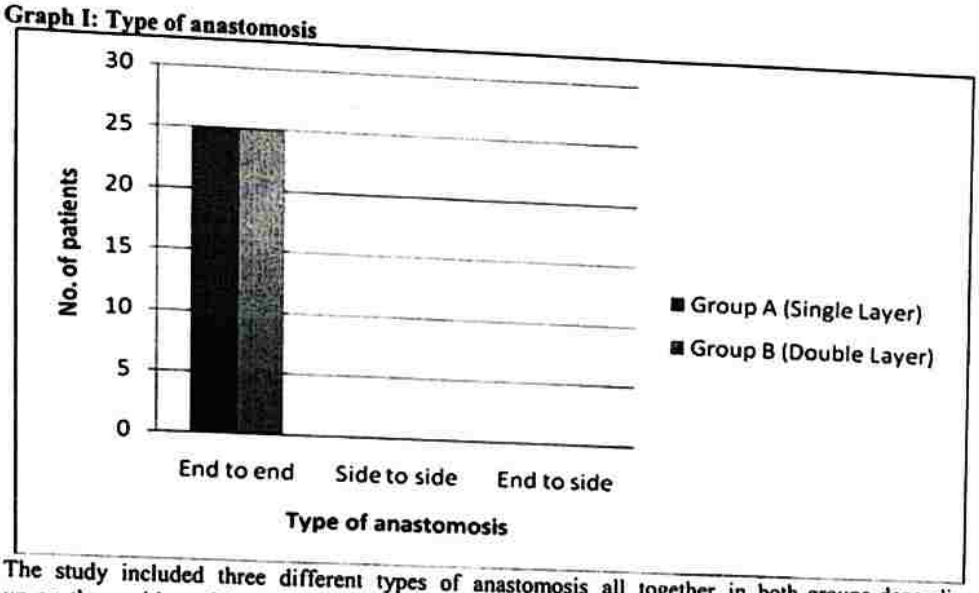
Table V: Anastomotic site

Anastomotic site	Group A (Single Layer)	Group B (Double Layer)
Entero enteric	11 (44)	13 (52)
Entero colic	12 (48)	9 (36)
Colo Colic	2 (8)	3 (12)
Total	25 (100)	25 (100)

This study included a total of fifty anastomosis at different levels of small intestine and large intestine. The maximum number of anastomosis in group A (single Layer) were performed at entero colic level in 12 (48%) patients, next at entero enteric site in 11 (44%) patients and least at colo colic site in 2 (8%) patients. In group B (double layer), out of 25 anastomosis maximum number of anastomosis were performed at entero enteric level in 13 (52%) patients, next common site for anastomosis was at entero colic site in 9 (36%) patients and followed by colo colic site in 3 (12%) patients.

Graph I: Type of anastomosis



The study included three different types of anastomosis all together in both groups depending up on the position of the viscera. In both the groups end to end type of anastomosis was done in all of the cases, i.e. in group A (single layer) 25 (100%) patients and in group B(double layer) 25(100%) patients. No side to side type of anastomosis or end to side anastomosis was performed in either of groups.

Table VI: Final outcome

Out come	Group A (Single Layer)	Group B (Double Layer)
DEATH	0 (0)	1 (4)
RECOVERED	1 (4)	1 (4)
ASYMPTOMATIC	24 (96)	23 (92)

In this study two patients who had developed anastomotic leak in group B (double layer), among them 1 (4%) patient responded well to conservative management and recovered. one more patient (4%) who had anastomotic leak in group B (double layer) died due to septicaemia and rest 23 patients (92%) were asymptomatic. In group A (single layer) one patient (4%) developed anastomotic leak and recovered with conservative management. p value if found out to be 1.14 and is not significant.

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Original Research Article

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Dermatological manifestations and their Correlation with CD4 Count in HIV Infected Patients: A Cross Sectional Study

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Abstract **Background:** HIV is predominantly lymphotropic to CD4 (T-helper) lymphocytes Other cells bearing CD4 receptors are also infected (e.g. macrophages, B cells, Langerhans cells, NK cells etc.). **Objective:** To find out the various patterns and presentations of dermatological conditions occurring in HIV Patients and their association with CD4count. **Methods:** In this study we included 100 patients above age of 15 years who were infected with HIV Virus. **Results:** The most prevalent infection was candidiasisseen in 25 patients it was a definite maker for HIV disease progression and was seen in early as well as late stages of HIV infection. Dermatophytosis was the second most common fungal infection seen in 11patients. Among viral infections, herpes simplex virus(HSV) wasthemost common infection found in 12patients, Herpes zoster was seen in 8 patients. The most common non – infectious dermatosis seen in our study was seborrhoeic dermatitis in 12patients. **Conclusions:** Dermatological manifestations occur throughout the course of HIV infection some of the manifestations can be considered as the predictors of advanced immunosuppression.

Keywords: Dermatological manifestations, HIV, HSV, CD4 count,

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INTRODUCTION

Human Immunodeficiency Virus is emerging as an epidemic of gigantic proportion affecting not only the developed nations but also the developing nations like India. Various systemic and cutaneous manifestations can occur in HIV, of which dermatological manifestations has its ownsignificance. Around 37.7 million people worldwide are infected with Human Immunodeficiency Virus (HIV).[1] There are 2.14 million people living with HIV in India making our country the third largest nation with HIV population. India has HIV prevalence of 0.26% among adults with 85,000 new HIV infections occurring annually. There are 1,43,000 people living with HIV in Tamilnadu.[2]

It has become evident over the past decade that cutaneous disorders can occur in all stages of HIV-infection.[3]In addition to generalized immunosuppression seen in HIV / AIDS, localized dermatological immune dysregulation is noticed and isresponsible for the development of skin and mucosalinfections.[4] Few selected dermatoses serve as sensitive and useful clinical indicators of HIV infection and disease progression. Certain dermatoses like herpes simplex virus infection are more severe, chronic in nature and present with atypical manifestations. CD4 countis helpful in monitoring HIV disease progression in patients on anti-retroviral treatment. It predicts the degree of immunosuppression and occurrence of specific dermatoses at specific CD4 counts. Our present study will attempt to find out the various patterns and presentations of dermatological conditions

Acneiform eruption						
Diffuse hair loss						
Eczema						
Lichen planus						
Vasculitis						
Lichenoid dermatitis						
HPV infection						
Herpes zoster	0	8	0	0	8	0.029
Molluscum contagiosum	0	3	0	0	3	0.359
Pyodermas	0	5	5	0	10	0.395
Syphilis	0	3	1	0	4	0.704
Chancroid	0	1	0	0	1	0.789
Scabies	1	2	1	0	4	0.717

P value <0.05: statistically significant

According to WHO immunological staging of HIV-infection, the prevalence of infectious manifestations in our study did not show any statistical difference.

Table 7: Prevalence of Non- infectious manifestations according to WHO clinical stage of HIV infection

P value <0.05: statistically significant

DISCUSSION:

HIV/AIDS has become highly prevalent in recent times. HIV infection presents with diverse and atypical dermatological manifestations. Skin is the largest and most visible organ of the body. It offers some advantages in diagnosing certain cutaneous manifestations of HIV / AIDS. It is known that around 90% of HIV- infected patients will develop at least one type of dermatoses during the course of their HIV infection. These dermatological manifestations act as markers in diagnosing the disease as well as predicting the degree ofimmunosuppression. In our study, 100 HIV-positive patients were selected and the various cutaneous manifestations were studied in relation to CD4 count. We found 143 cutaneous dermatoses in our study population with many patients having multipledermatoses.

In our study, out of 100 patients, there were 72(72%) males and 28(28%) females. Males outnumbered females with a ratio of 2.6:1. This ratio is slightly more compared to studies reported previously by Chawan et al Kore et alwhere the ratio was 2:1. The most common age group affected was 31 – 40 years (43 patients). This was followed by the age group of 41 –

Pigmentary disorders	5	285.6 (±104.05)	245.39(±143.67)	0.539
Adverse reaction to drugs	4	147.25 (±50.33)	251.57(±142.97)	0.15
Psoriasis	3	325.67 (±340.12)	244.98(±139)	0.534
Xerosis	3	256 (±87.98)	247.13(±143.45)	0.916
Acneiform eruption	3	429.67 (±79)	241.76(±139.79)	0.023
Diffuse hair loss.	2	156 (±86.27)	249.27(±142.39)	0.36
Eczema	2	437.5 (±383.96)	243.52(±135.08)	0.055
Lichen planus	1	238	247.5(±142.54)	-

P value <0.05: statistically significant

According to WHO clinical staging of HIV-infection, the prevalence of seborrheic dermatitis, pigmentary disorder, psoriasis, acneiform eruption and lichenoid dermatitis showed statistical significance.

Table 6: Prevalence of Infectious manifestations according to WHO clinical stage of HIV infection:

Infections	Stage 1 n = 10	Stage2 n= 49	Stage3 n=33	Stage4 n=8	Total n = (%)	P value
Candidiasis	0	0	22	3	25	<0.001
Dermatophytosis	0	7	3	1	11	0.59
Herpes simplex virus infection	0	3	3	6	12	<0.001

Dermatological findings	Stage 1 n = 10	Stage 2 n= 49	Stage 3 n=33	Stage4 n=8	Total n = (%)	P value
Seborrheic dermatitis	0	11	1	0	12	0.018
PPE	0	9	2	0	11	0.124
Nail changes	0	3	2	1	6	0.744
Pigmentary disorders	3	1	1	0	5	0.002
Adverse reaction todrugs	0	1	3	0	4	0.325
Psoriasis	3	0	0	0	3	0.000
Xerosis	0	2	0	1	3	0.261

In our study which included 100 cases there were many patients with multiple dermatological manifestations, so in total there were 143 dermatoses. Sixty one patients had only one dermatological manifestation, while thirty five patients had two manifestations and four patients had three dermatological manifestations. Among the non-infectious diseases, statistically significant difference was found in case of seborrhoeic dermatitis and acneiform eruption.

Table 4: CD4 cell count and Infectious dermatoses

Infections	Number of patients	Mean CD4 /mm^{3}of those having infections ± S.D.	Mean CD4 /mm^{3}of those not having infections ± S.D.	P value
Candidiasis	25	210 (±111.33)	259.87(±149.19)	0.129
Dermatophytosis	11	167 (±141.43)	255.88(±140.09)	0.073
Herpes simplex virusinfection	12	247.25 (±106.66)	247.42(±146.45)	0.997
HPV infection	11	143.73 (±44.13)	260.21(±144.55)	0.009
Herpes zoster	9	292.75 (±154.5)	243.46(±140.88)	0.348
Molluscum contagiosum	3	136 (±83.07)	250.85(±142.12)	0.168
Pyodermas	12	225 (±83.25)	249.9(±147)	0.599
Syphilis	0			
Chancroid	0			
Scabies	6	321.25 (±180.69)	244.32(±140.32)	0.29

P value < 0.05: statistically significant

According to WHO clinical staging of HIV-infection, the prevalence of candidiasis, herpes simplex virus infection and herpes zoster was statistically significant. Among the infectious diseases, statistically significant difference was found in HPV infection. This implies that the prevalence of HPV infection in HIV-positive patients increases as the CD4 count declines.

Table 5: CD4 cell count and Non-infectious dermatoses

Non-infectious manifestation	No. of patients	Mean CD4 Count /mm^3 with non-infectious dermatoses ± S.D.	Mean CD4 Count /mm^3 without non-infectious dermatoses ± S.D.	P value
Seborrheic dermatitis	12	353.5 (±155.04)	232.93(±134.47)	0.005
PPE	11	211 (±108.3)	251.9(±145.29)	0.37
Nail changes	6	157.5 (±82.76)	253.14(±143.13)	0.109

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ASSOCIATION OF VITAMIN D LEVELS WITH THE SEVERITY OF BRONCHIAL ASTHMA

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Abstract

Background: The rising prevalence of bronchial asthma in developing nations like India is attributed to various factors like urbanization, environmental pollution, industrialization, lifestyle changes. To find out association of Vitamin D levels with severity of Bronchial Asthma. **Materials and Methods:** This observational and cross-sectional study was conducted in Department of Medicine, L.L.R.M Medical College, Meerut. 90 patients from Medicine and TBCD OPD/IPD were selected randomly. **Result:** Minimum age was 16 years and maximum was 59 years. Most of the patients were in age group 16-30 years. Majority of the patients were Vitamin D deficient (40.0%). Majority of the patients had FEV1 levels >80% (48.9%). Majority of the study population belonged to Moderate Severity of Asthma (33.3%) whereas 28.9% had Intermittent Severity of Asthma. The Vitamin D deficiency levels correlated positively with severity of Bronchial Asthma and correlation was highly significant ($p<0.001$). **Conclusion:** Supplementing Vitamin D in asthmatic patients has been shown to be beneficial. However, the temporality of this observation still needs to be established.

INTRODUCTION

Bronchial asthma is one of the most common diseases affecting nearly 300 million people globally (i.e.,) 8-10 % of the population. The rising prevalence of bronchial asthma in developing nations like India is attributed to various factors like urbanization, environmental pollution, industrialization, lifestyle changes.[1]

Bronchial asthma is a chronic inflammatory disease of the airways characterized by airway hyper responsiveness and airflow obstruction that is often reversible at least in the initial stages.[2] The pathogenesis of asthma is very complex and is not fully elucidated yet. A variety of cells and inflammatory mediators play a critical role in initiating, perpetuating and coordinating the repeated cycles of inflammation. The fundamental pathology in asthma is the exaggerated TH2 response to normally harmless environmental antigens resulting the release of TH2 cytokines mainly interleukins 4,5 and 13 of which IL4 and IL 13 are responsible for the production of antigen specific IgE by B lymphocytes. IL 5 is responsible for prolonging the survival of eosinophils.[2,3]

Vitamin D is found to have anti-inflammatory activity in several in vitro studies. Vitamin D reduces inflammation by decreasing the levels of proinflammatory cytokines and increasing he levels of anti-inflammatory cytokines like interleukin 10.4) Vitamin D also reduces bronchial smooth muscle cell hypertrophy and hyperplasia. In addition, vitamin D improves response to inhaled and oral corticosteroids.5 Thus, Vitamin D by inhibiting the cycles of chronic inflammation reduces airway remodelling which is the major pathologic change seen in the lungs of asthmatic patients.6 Based on the anti-inflammatory and immunomodulatory effects of cholecalciferol, this study was taken up to evaluate the correlation of severity of Asthma with Vitamin D levels.

Aims and Objectives

Aim: To find out association of Vitamin D levels with severity of Bronchial Asthma.

Objectives

1. To evaluate Vitamin D levels in Bronchial Asthma.
2. To evaluate correlation of Vitamin D levels with severity of Bronchial Asthma.