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RESEARCH ARTICLE

CLINICO-EPIDEMIOLOGICAL PROFILE OF PULMONARY AND EXTRA PULMONARY TUBERCULOSIS IN A HOSPITAL OF NORTH INDIA: A RETROSPECTIVE STUDY.

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Abstract

Background: Despite all the advances in the last century, tuberculosis (TB) is still a major problem of public health importance. It is one of the top 10 causes of death worldwide.

Material and methods: A retrospective record based study on diagnosed cases of tuberculosis, both pulmonary and extra pulmonary was conducted in a tertiary care hospital of North India for a duration of two and a half years. The information about demographic profile, risk factors, clinical presentation and various diagnostic tests done were obtained from medical case records and analyzed.

Results: The study included 230 TB patients. Of these, 82.6% had pulmonary TB and 17.4% had extra pulmonary TB. Male to female ratio was 1.7:1. The number of patients in the age group 20-40 years was greatest. Disseminated TB (30%), abdominal TB (22.5%) and lymphadenitis were the most common form of EPTB. Majority of the cases (74.7%) were from rural areas. History of contact was present in 13% cases. The percentage of smokers and alcoholics in our study was 38.2% and 16% respectively. Diabetes was present in 19.1% patients. Mantoux test was positive in 53% cases and 62.7% were smear positive on ZN staining.

Conclusion: TB mostly affects the young and economically productive age group especially from rural areas. It is very important to educate the rural folks about the disease, its mode of spread and create appropriate health care facilities.

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Introduction:-

Despite all the advances in the last century, tuberculosis (TB) is still a major problem of public health importance. India falls into category of WHO high burden countries (HBC) with incidence rate of TB and MDR TB as 217 and 9.9 per 100 000 population respectively.

It causes morbidity in millions of people each year and in 2015 was one of the top 10 causes of death worldwide, ranking above HIV/AIDS as one of the leading causes of death from an infectious disease [1]. Several retrospective and prospective studies have associated certain host factors like gender, age, co-infection with HIV or other

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immunosuppressive disease like asthma, diabetes etc., smoking, drinking, malnutrition and environmental and social factors like household contact, poverty, crowding, education and socio-economic status with the increased susceptibility to diseases progression [2, 3, 4, 5, 6, 7, 8, 9].

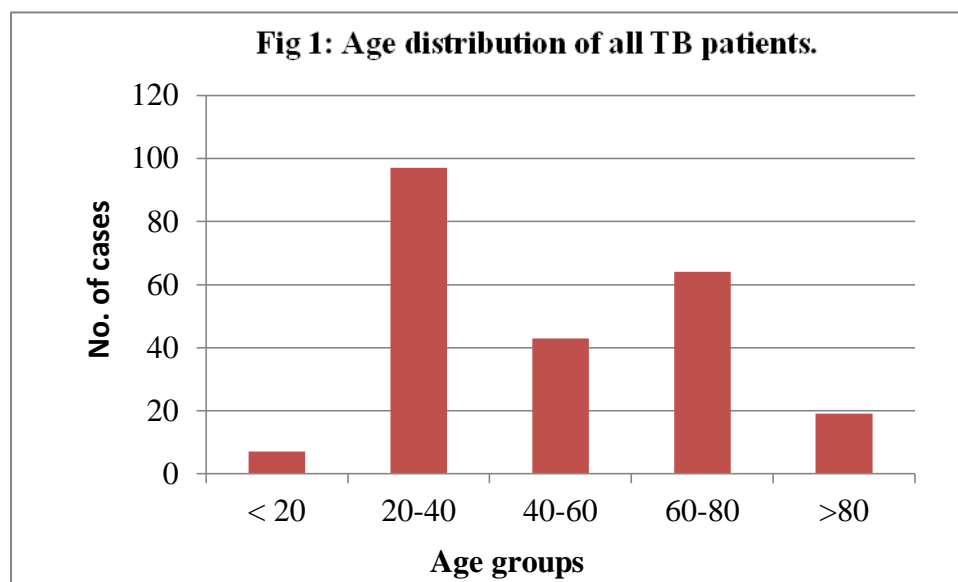
TB can typically present with pulmonary involvement or can be extrapulmonary. The percentage of extra pulmonary TB (EPTB) cases, in developing countries such as India is between 15% - 20% and was even more in tertiary care centres of India, ranging from 30% to 53% [10, 11]. The highest priority in TB control programs is given to pulmonary TB (PTB) and also, the data on various forms of EPTB is scanty in comparison. Although there are few clinico epidemiological hospital based studies on PTB and EPTB from Kashmir but such data is lacking from Jammu region [12, 13]. With this background this study was aimed to describe the basic demographic profile, clinical characteristics and risk factors of tuberculosis in patients admitted to the tertiary care teaching hospital of this region.

Material and methods:-

A retrospective record based study on diagnosed cases of tuberculosis was conducted in our hospital from January 2015 to June 2017, after obtaining due clearance from institutional ethical committee. All the diagnosed cases of TB were included in the study. Their medical case files were retrieved from the medical records department and data pertaining to the demographic profile like age, sex, residence etc was obtained. Apart from this, detailed information about the clinical presentation and various diagnostic procedures carried out to reach the diagnosis like mantoux test, Ziehl –Neelsen staining for acid fast bacilli, chest radiographs for localization of lesions in the chest, details of laboratory, radiographic and/or histopathological examination for diagnosis for extra-pulmonary TB was also collected. Also information about household contact with an active case of pulmonary TB, tests for HIV Infection and other co-morbid conditions like diabetes and risk factors such as history of alcohol intake and smoking were gathered. Data analysis was done using Microsoft Office Excel and expressed in percentages.

Result:-

In the present study 230 patients were diagnosed with tuberculosis in a span of two and a half years from January 2015 to June 2017 in our hospital. Of these, 190 patients had PTB (82.6%) and 40 had EPTB (17.4%). Male predominance with a male to female (M: F) ratio of 1.7:1 was seen. The number of patients in the age group 20-40 years was greatest with 97. This was followed by 64 patients in the age group 60-80 years and 43 in the age group 40-60 years [Figure 1].



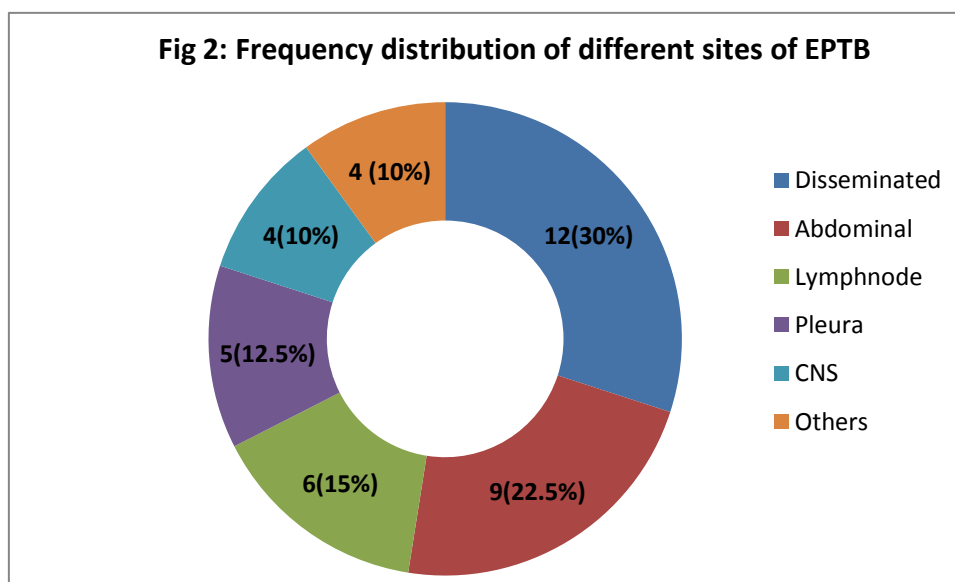
Cough, fever and loss of appetite were the chief complaints of PTB patients for which they sought medical consultation [Table 1]. Disseminated TB (30%), abdominal TB (22.5%) and lymphadenitis were the most common form of EPTB in our study [Figure 2]. The chief presenting complaints in disseminated TB were fever, cough followed by breathlessness, loss of appetite and loss of weight. Abdominal Tb patients presented with loss of

appetite, pain abdomen, fever whereas patients with lymphadenitis had swelling, pain and fever. Pleural TB cases had fever, cough, breathlessness and chest pain. The CNS TB cases presented with Fever, headache and weight loss.

Table1:- Presenting symptoms among the 190 PTB patients

Presenting complaints	Number (%)*
Cough	115 (60.5)
Fever	87 (45.78)
Loss of appetite	57 (30.0)
Breathlessness	42 (22.1)
Haemoptysis	33(17.4)
Loss of weight	21(11.1)
Pain (chest, abdomen)	9(4.7)
Others	27 (14.2)

*Each patient had more than one symptom



Out of 230 cases studied, 172 (74.7%) were from rural areas. A positive history of contact with a known case of TB was recorded in 30 cases (13%). As far as addictions like smoking and alcohol is concerned, 88 (38.2%) TB patients were smokers and 37 (16%) were alcoholics in our study. Co morbid condition like diabetes was present in 44 (19.1%) patients. A single case of HIV-TB co-infection was reported during the study period.

The main procedures/investigations carried out for diagnostic purposes were mantoux test, X ray chest, ESR, Ziehl Neelsen (ZN) staining for acid fast bacilli (AFB) on various samples like sputum, pus, gastric lavage, pleural fluid and CSF. ZN staining was done on 196 samples and 62.7% of the smears were positive for AFB. Out of these total ZN smears, 179 were that of sputum and 115(64.2%) were positive for AFB. Other investigations done for confirmation of diagnosis were FNAC, CT chest, CT abdomen, USG, MRI. A case of abdominal TB was diagnosed on colonoscopy [Table 2] and [Figure 3].

Table 2:- Procedures / Investigations carried out for diagnosis

Investigations/ Procedures	No. of Positive investigations / Total investigations	%age +ve
Mantoux test	113/210	53%
ZN staining for AFB	123/196	62.7%
Elevated ESR	138/195	70.7%
X ray Chest	157/215	73%
FNAC	4/6	66.6

CT Chest	38/42	90.5%
CT Abdomen	7/8	87.5%
USG	3/8	37.5%
MRI	3/4	75%
Colonoscopy	1/1	100%

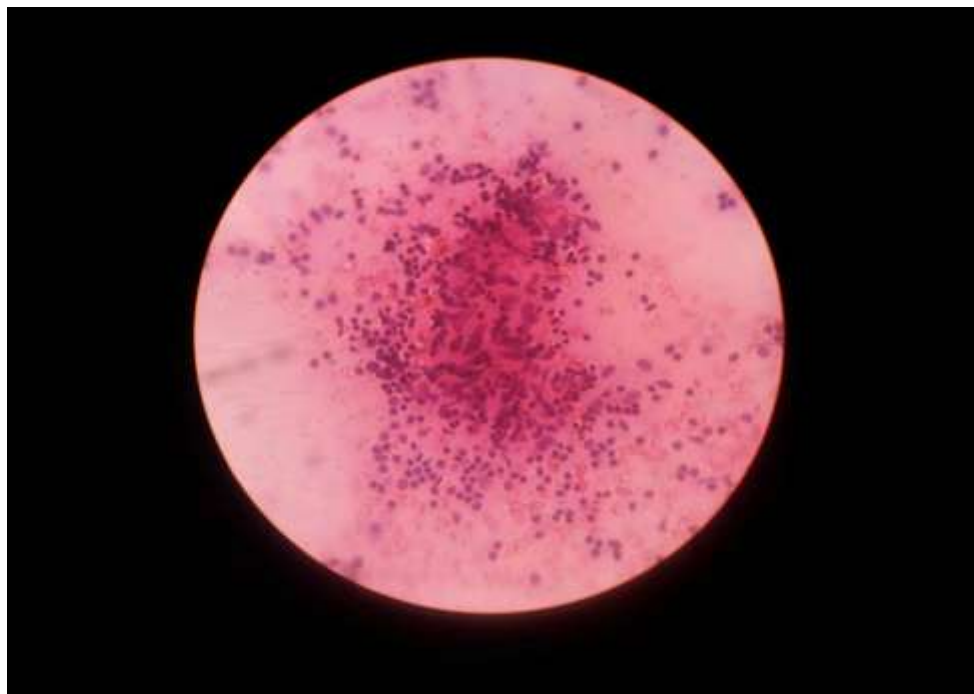


Fig 3:- 10x H & E of the FNAC specimen from granulomatous tubercular lymphadenitis showing granuloma comprising of epithelioid histiocytes in a background of caseous necrosis

Discussion:-

The main aim of the study was to provide an understanding and up-to-date assessment of the TB situation in terms of demography, clinical presentation and diagnosis of the disease in our hospital, where we mainly receive patients from Jammu and adjoining rural areas. About 82.6% patients included in the study had PTB whereas 17.4% had EPTB. Lot of variation has been reported in the percentage of EPTB cases nationally and internationally which depends upon many variables like demographic composition of the study population, various comorbidities and diagnostic facilities available [2, 14, 15, 16, 17]. The male predominance reported in our study was similar to various other studies [2, 12, 18]. The greatest burden of TB was seen in the young, active and economically productive age group, 20-40years which is in concordance with other studies [6, 10, 12, 13, 18, 19]. The active social life and outdoor activity exposes the male sex and young and middle age group to TB.

Cough and fever were the main presenting complaints in our study, as reported by other studies [2, 12, 18]. The prevalence of different types of EPTB is varied in different geographical locations. In our study disseminated TB was the commonest type of EPTB as reported in another study from south India [3]. Other common sites were abdomen, lymph nodes, pleura as reported in earlier studies [13,14,15, 16,19].

Majority of the patients in our study (74.7%) were from rural background which is consistent with other hospital based studies from the J&K state which only strengthens the fact that awareness about TB is lacking in rural areas [12, 13]. The positive history of contact, a known risk factor for developing TB ranged from 3.38% to 52% in various studies [2, 6, 20, 21]. In our study 13% of the patients had a positive history of contact with a known case of TB. It is established that smokers and alcoholics are at a greater risk of developing active TB due to toxic effect on immune system and nutritional deficiencies [22]. The percentage of smokers in our study was 38.2% which is almost similar to some national and international studies [2, 12]. The number of smokers in some studies are much higher [23]. In our study 16% of the TB patients were alcoholics, whereas other studies have reported the

percentages ranging from 12.6% to 50% [6, 22]. Diabetes mellitus is associated with an increased risk of tuberculosis regardless of variation in study design and population studied [2, 3, 6, 23]. Diabetes was reported in 19.1% of the TB patients in our study. A low rate of HIV-TB co-infection was seen with only a single case being reported during the study period. This is in line with the fact that J&K is a low HIV prevalence State. In other studies HIV-TB co-infection rate varied from 1.5-10% [2, 3, 6, 13, 15, 18].

ZN staining of the sputum smears revealed 64.2% to be positive which is almost comparable to another hospital based study [2]. Another study from south India had higher positivity rate of 78.4% [18]. Mantoux test was done only on 210 cases included in the study, out of which 113(53%) were positive. Other studies from Nepal and Himachal have reported mantoux positivity rate of 66% and 43% respectively [16, 17]. Other investigations which helped in coming to the final diagnosis like elevated ESR, X ray chest, FNAC, CT chest, CT abdomen, USG, MRI were similarly useful in other studies [2, 12, 13, 14, 16, 18].

Conclusion:-

Our study highlights the fact that TB mostly affects the young and economically productive age group. The common types of EPTB in our region are disseminated, abdominal, lymph node. Dominant proportion of cases were from rural areas, so it is very important to educate them about the disease, its mode of spreading and treatment options available. Also government should prioritize the development of appropriate health and diagnostic facilities in rural areas.

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