INTRODUCTION

Tuberculosis (TB) continues to be one of the most devastating and widespread infections in the world. Various professional bodies have published standardized treatment of various types of TB in children according to clinical manifestations. World Health Organization (WHO) has suggested a category based treatment of TB. Recently, Revised National Tuberculosis Control Programme (RNTCP), in association with Indian Academy of Pediatrics (IAP), have categorized various types of TB placed in line with existing WHO guidelines. Globally in 2016, an estimated 10.4 million people fell ill with TB and out of them an estimated 6.7 million incident cases of TB among males, of which 6.2 million were adults and 550,000 were children. There were 3.7 million incident cases of TB in females, of which 3.2 million were adults and 490,000 were children. These numbers correspond to 65% of cases being males and 35% females, and 90% of cases being adults and 10% children. Directly observed treatment short (DOTS) course strategy aims at treatment of adult patients, particularly, to prevent spread of infection. While TB in children may not contribute significantly to spread of infection in the community, but it remains an important cause of morbidity and mortality. Therefore, it is appropriate to include children as beneficiaries of the DOTS strategy. Considering this, we performed present study with the aim to assess profile and outcome of childhood tuberculosis treated with DOTS.

MATERIALS AND METHODS

After considering the utility of the study we selected seventy-four children age ranged 0-14 years of tuberculosis of either gender. Exclusion criteria was children with tuberculosis on Antitubercular treatment (ATT) other than DOTS regimen. A detailed history such as demographic profile and clinical examination were carried out. Diagnosis of tuberculosis was made based on WHO/RNTCP guidelines. All the diagnosed children were categorized and treated with DOTS regimen. All children were referred to DOTS centre for drugs and were followed up in pediatric TB clinic once in 2 weeks in intensive phase and once in 4 weeks during continuation phase and were prescribed isoniazid 10 mg/kg, Rifampicin 10 mg/kg, Ethambutol 30 mg/kg, Pyrazinamide 35 mg/kg, Streptomycin 15 mg/kg. Outcome of patients was assessed as cured, treatment failure or lost to follow-up. Treatment failure was any TB patient who was smear-positive at 5 months after starting treatment.

Conclusion: Extra-pulmonary tuberculosis was more common than pulmonary TB and among EPTB, neurotuberculosis was more common.
TB patient who was smear-positive at 5 months after starting treatment.

Clinical improvement was evaluated at the end of the intensive phase of treatment and at the end of completion of treatment. Radiological improvement was determined by chest radiograph examination in all smear negative pulmonary TB cases at the end of treatment. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

**RESULTS**

Out of 74 patients, boys comprised of 45 (60%) and girls 29 (40%) [Table 1].

<table>
<thead>
<tr>
<th>Gender</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number (%)</td>
<td>45 (60%)</td>
<td>29 (40%)</td>
</tr>
</tbody>
</table>

Common clinical features were convulsion in 12, fever in 65, cough in 38, pallor in 50, headache in 8, vomiting in 6, loss of appetite in 16, altered sensorium in 12, hepatomegaly in 7, splenomegaly in 6 and abdomen distension in 3 cases. The difference was significant (P< 0.05) (Table II, graph I).

### Table 1: Patients distribution

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Treatment completed</th>
<th>Cured</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary TB</td>
<td>32</td>
<td>32</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>Extra pulmonary TB</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Abdominal</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lymphadenitis</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pleural effusion</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Constrictive pericarditis</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Neutrotuberculosis</td>
<td>28</td>
<td>26</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>Constrictive pericarditis</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Phlyctenular conjunctivitis</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

DISCUSSION

Tuberculosis in children is mainly due to failure of TB control in adults. This orphan disease exists in the shadow of adult TB and is a significant child health problem, but is neglected because as cases are usually smear negative it is considered to make a relatively minor contribution to spread. In an infected child, risk of developing the disease is determined by various factors including age, malnutrition, immune status in deficient states like in Human Immunodeficiency Virus (HIV) infections, genetic factors, virulence of the organism, magnitude of initial infection and maturity of immune response. Pulmonary TB (PTB) is commoner in children, with only 20-30 percent of the cases being the extra-pulmonary TB (EPTB), which includes peripheral lymphadenopathy, TB meningitis, skeletal TB, skin TB, gastrointestinal tract and other organ involvement. The present study aimed to assess profile and outcome of childhood tuberculosis treated with DOTS. Our results showed that out of 74 patients, boys comprised of 45 (60%) and girls 29 (40%). Panigatti et al. determined clinical profile and outcome of childhood tuberculosis treated with directly observed treatment short (DOTS) course regimen. Total number of children enrolled in the study were 93. Mean age was 6 years. Male to female ratio was 0.9:1. Extra pulmonary tuberculosis (EPTB) was common 58 (62.4 %) than pulmonary tuberculosis 35 (37.6 %). The common symptoms/signs were fever (83.8 %), cough (46.2 %), convulsion (17.2 %), loss of appetite (11.8 %) and pallor (75.3 %), lymphadenopathy (18.3 %), hepatomegaly (9.7 %) and splenomegaly (6.5 %). Mantoux test was positive in 59 (63.4 %) children. Acid fast bacilli (AFB) was isolated in 13 (14%) children in various
fluid/histological specimens. The prevalence of HIV infection was 7.5%. Among 93 children, 88 (94.6%) completed treatment and were declared cured; four children were lost to follow up and one child died. Compliance of DOTS was good and there were no side effects due to ATT.

Our results showed that common clinical features were convulsion in 12, fever in 65, cough in 38, pallor in 50, headache in 8, vomiting in 6, loss of appetite in 16, altered sensorium in 12, hepatomegaly in 7, splenomegaly in 6 and abdomen distension in 3 cases. Dhaked et al.[16] in their study a total of 141 study subjects were enrolled. Majority of the subjects (51.8%) belonged to 11–14 years of age group were females (63.8%) and from lower middle-class families (48.9%). There were 70.2% cases of Extra pulmonary TB which was almost three times more prevalent than pulmonary TB. During follow up visits symptoms like chest pain, breathlessness disappeared by the end of intensive phase and fever, cough and skin lesion improved by the end of continuation phase. Mean weight gain in malnourished children (2.6 kg) was lesser as compared to normal children (3.0 kg) at the end of 3rd visit. Treatment success rate in category 1 was 96.2% and in category 2 was 90%.

There were 32 cases of pulmonary tuberculosis and all were cured. 2 cases of abdominal, 1 was cured. Out of 4 cases of lymphadenitis, 3 cured and 1 died. Out of 2 cases of pleural effusion, all cured. Out of 3 cases of constrictive pericarditis, all cured, out of 28 cases of neurotuberculosis, 26 cured and 2 died, out of 2 cases of constrictive pericarditis, all cured and out of 1 case of Phlyctenular conjunctivitis, all were cured. Shahab et al.[17] in their study among pediatric tuberculosis patients observed a prevalence of 2%. The study shows higher seroprevalence rate probably because, this part of the state is having higher number of HIV cases. In India, HIV seroprevalence in tuberculosis patients observed a prevalence of 2%. The study shows higher seroprevalence rate probably because, this part of the state is having higher number of HIV cases. In India, HIV seroprevalence in tuberculosis patients varies from as low as 0.7 % in Delhi, 2 % in Aligarh and as high as 5.89 % in Mumbai and 20.1 % in Pune.

CONCLUSION

Extra-pulmonary tuberculosis was more common than pulmonary TB and among EPTB, neurotuberculosis was more common.

REFERENCES