

# A study of Assessment of Prevalence of Tubercular Infection and Tubercular Cervical Lymphadenitis in Rural school children of Nagamangala Taluka of Mandya District, Karnataka State

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## Research Article

**Abstract: Background:** Tuberculosis is one of the common communicable infections in our country. The present study reveals the status of Tubercular infection and Cervical Tuberculosis lymphadenitis in rural school children of Nagamangala Taluka of Karnataka State in the year 2004-2005. **Objectives:** Assessment of prevalence of Tubercular infection and Tubercular Cervical lymphadenitis in school children of Nagamangala district of Karnataka state. **Materials and methods:** data was collected from sample size of 693 school children using simple random technique. Tuberculin test to assess prevalence of Tubercular infection and FNAC test to confirm tubercular cervical lymphadenitis. **Results:** Tubercular infection was found to be 3.17% and Tubercular Cervical lymphadenitis 0.58%. **Conclusion:** Tuberculosis infection is still common in school children and so is tubercular cervical lymphadenitis (extra pulmonary tuberculosis). Tuberculin test in children and FNAC test are cost effective in assessing status of TB infection and Tubercular cervical lymphadenitis.

**Key words:** Tubercular infection, Tubercular cervical lymphadenitis, Tuberculin test, FNAC (fine needle aspiration cytology)

### Introduction

Tuberculosis is major public health problem in India causing significant and alarming mortality, morbidity, economic loss and social problem. Every year two million people develop Tuberculosis and more than five lakh people die due to tuberculosis in India<sup>1</sup>. India accounts for maximum number of TB cases compared to any other countries in the world<sup>2</sup>. One third of global burden of Tuberculosis is present India<sup>1</sup>. Overall Prevalence of Tuberculosis infection in India is 30%<sup>1</sup>. Among school children, the prevalence of Tuberculosis infection is 23% in the age group of 5-15 years<sup>1</sup>. Tuberculous cervical lymphadenitis is common form extra pulmonary Tuberculosis in children and accounts for less than 10% of total Tuberculosis cases<sup>1</sup>.

### Materials and Methods

**Study area:** The study was conducted in Nagamangala taluka of Mandya district of Karnataka State.

**Study period:** June 2004-February 2005

**Study design:** Cross sectional study.

**Study population:** All the sampled eligible population of school children of Nagamangala taluka of Mandya district of Karnataka State

**Sample size and Sampling technique:** Sample size was estimated based on of earlier study result of prevalence of Tuberculosis infection<sup>4</sup> (11% ) in children using formula  $(4pq/d^2)$  where n=sample size, p=prevalence of Tuberculosis in children, q=(100-p) and d= allowable error of 2.5% with absolute precision and with 95% confidence limits .In the present study the sample size was 693( 661 as per calculation plus 5% for sample attrition) Simple random sampling technique was used to select 693 study subjects from the schools of Nagamangala Taluka.

**Ethical clearance:** Informed consent was taken from the Ethical committee of Adichunchanagiri Medical College and from Institutional heads of the school, and from parents of study subjects.

**Inclusion and Exclusion criteria:** selected children and their parents who were willing for the study were included and those children and their parents who did not wish to take part were excluded.

**Technique of assessment of Tuberculosis infection in children:** Standard Tuberculin (Monteux) test was used to assess present or past Tubercular infection. FNAC (Fine Needle Aspiration Cytology) was used to confirm Tuberculosis Cervical lymphadenitis.

**Data collection, Analysis and Statistical methods:** The data were collected in a pretested proforma computed in Microsoft Excel. The data were used to calculate frequencies and proportions.

## Results

The study included 693 school children as study subjects out of which 318 were male and 375 were female in the age group of 6 to 15 years. Montoux test was done on all 693 study subjects out of which 22(3.17%) showed positive reaction and 671(96.83%) showed negative or doubtful reaction.

**Table 1:** Number of study subjects showing positive/negative reaction to Montoux test

Montoux test result status	Number of students	Percentage
Positive	22	3.17
Negative	671	96.83
Total	693	100

Out of 693 study subjects, 46(6.64%) showed presence of cervical lymphadenitis. FNAC (Fine Needle Aspiration Cytology) was done on 46 cases of cervical lymphadenitis and 6 of these cases were found to be cases of Tubercular cervical lymphadenitis. Thus the prevalence of Tubercular cervical lymphadenitis was to the extent of 0.86% in the present study.

**Table 2:** describing Tubercular cervical lymphadenitis in school children

Total school children examined for cervical lymphadenitis	Number of school children having cervical lymphadenitis	Number of school children on whom FNAC was done	Confirmed cases of Tubercular cervical lymphadenitis
693	46(6.64)	46	6(0.86%)

## Discussion

The present study reveals the prevalence of Tuberculosis infection in school children to the extent of 3.17%. Our study results are much lower compared to the results of studies done by Chadha et al (11.03%) in Bangalore in 1996-97<sup>4</sup> and Bhagyalakshmi et al (30%) in slums of Ahmadabad in 2001<sup>3</sup>. The lower rate of Tubercular infection in school children compared to previous studies done elsewhere in last three decades could be due to improvement in BCG immunization coverage and improvement in literacy over the past three decades, The present study also reveals the prevalence of Tubercular cervical lymphadenitis to the extent of 0.86% which is much lower to the results of study done by Suryanarayana, et al (3.2%) in south Indian community<sup>5</sup>.

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## References

1. Park K, editor. Park's textbook of preventive and social medicine: 17<sup>th</sup> ed. Jabalpur: Banarasidas Bhanot; 2002: 138-153
2. Government of India. TB India 2003 RNTCP status report. Government of India DGHS publication, New Delhi: Government of India; 2004; 1-20
3. Bhagyalakshmi A, Khadri AM, Lala MK, Jivarajani P, Patel T, Patel M. Prevalence of tuberculosis infection among children in slums of Ahmadabad. Indian Pediatr. 2003; 40(3); 239-43.
4. Chadha VK, Vaidyanathan PS, Jagannatha PS. Annual risk tuberculosis infection in rural areas of Junagadh district. J Commun Dis. 2001; 33(4); 231-40.
5. Suryanarayana L, Suryanarayana HV, Jagannatha PS. Prevalence of pulmonary tuberculosis among children in a south Indian community. Ind. J. Tub. 1999; 46; 171.