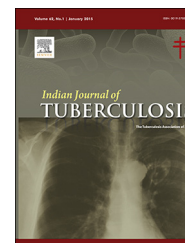


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Original Article

Oral health status and awareness among tuberculosis patients in an Indian population

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ABSTRACT

Background: Knowledge and awareness regarding oral health problems of tuberculosis patients are lacking among patients, physicians, as well as dental practitioners.

Aim: This study aimed to assess the oral health status and awareness among the tuberculosis patients in an Indian population.

Methods: Study sample comprised of 210 tuberculosis patients and 210 nontuberculosis subjects. The tuberculosis patients were categorized into new patients (group A), previously treated (group B), and drug-resistant tuberculosis patients (group C). History of present problem and awareness about oral health was noted. Periodontal health status was ascertained using Community Periodontal Index (CPI). Other oral findings were also recorded.

Results: The results were analyzed statistically. 62.9% of total tuberculosis patients had one or more oral problems. Most common problem was tooth pain (34%). CPI score was significantly higher ($p < 0.05$) for tuberculosis patients (2.94) than in control group (1.34). Mean CPI score for groups A, B, and C patients was 2.83, 2.91, and 3.09, respectively.

Conclusion: This study suggests awareness of oral health status and oral manifestations of tuberculosis among physicians and dental professionals.

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1. Introduction

Tuberculosis is a major global health accounting for a major bulk of the affected population. Even after the availability of effective drugs and vaccines, making it a

preventive and curable disease, it remains a worldwide health issue being the second most common cause of death from an infectious disease, after the human immunodeficiency virus (HIV). The emergence of drug resistance forms together with its association with HIV has led to a more critical situation.¹

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Oral manifestations of the tuberculosis are rare, despite being important. There have been studies and various case reports published²⁻⁶ with reference to the oral lesions as being primary or secondary manifestation of the disease, but literature is very limited in relation to the oral health status of such patients. In developing countries such as India, where the low-income population becomes a primary target of the disease, the oral health is largely neglected but adds to the morbidity of the patient. The purpose of the present study was to document the oral health problems and to assess the oral health status and awareness among the patients suffering from tuberculosis in an Indian population.

2. Study population and methods

2.1. Sample selection

The study population comprised 210 tuberculosis patients (119 male, 91 female) between 18 and 70 years of age (mean 33.64 years) visiting the Government tuberculosis and chest hospital, Indore, Madhya Pradesh, India. This being a specialty Tuberculosis Center, a representative section of the society comprising of all the ethnic and cultural groups attended the same. The control group consisted of 210 age- and sex-matched nontuberculosis patients randomly drawn from volunteers visiting the dental camps on ten primary locations of same territory. Care was taken to include approximately equal representation from both sexes and as many cultural backgrounds as possible.

Inclusion criteria for both the study and the control group were patients with at least 20 teeth present in the mouth and aged between 18 and 70 years. Informed written consent was obtained from all the participants in this study.

Tuberculosis patients were categorized on the basis of history of previous tuberculosis treatment (patient registration group) according to WHO guidelines⁶ into groups A and B, and drug-resistant patients were included in group C as follows:

- **Group A:** New patients have never been treated for tuberculosis or have taken anti-tubercular drugs for less than 1 month.
- **Group B:** Previously treated patients have received 1 month or more of anti-tubercular drugs in the past including relapse patients, treatment after failure patients and treatment after loss to follow-up patients.
- **Group C:** All drug resistance tuberculosis patients.

2.2. Questionnaire

All relevant information regarding the age, gender, education, BCG vaccination history, awareness about oral hygiene (cleaning of teeth, visit to dentist), oral hygiene aids used (finger, stick, tooth brush, tooth paste, tooth powder, tongue cleaner), frequency of tooth brushing (once, twice daily), tobacco use, awareness of cancer due to tobacco use, details of oral problem (if present), and any other medical condition were recorded. Detailed history regarding tuberculosis disease (previous and present symptoms, earlier medication) was also noted.

2.3. Clinical examination

Clinical examination of oral cavity was done by experienced dentists (SKG, PS, AM) for oral hygiene status, any ulcer or other finding. Periodontal status assessment was done with a Community Periodontal Index (CPI) probe (Hu-Friedy, Chicago, IL, USA), with a 0.5 mm ball tip, with a black band between 3.5 and 5.5 mm. The teeth examined were 17, 16, 11, 26, 27, 37, 36, 31, 46, and 47. Although 10 index teeth were examined and only the highest score relating to each sextant was made. The CPI was recorded for the study and the control group.

Clinical examination for tuberculosis and related symptoms was done by a specialist (AK) and a general physician (PS).

2.4. Statistical analysis

Statistical analysis was done using SPSS (10.0) statistical software. Statistical tests employed for the obtained data in our study were Fischer test, Z test, and Mann-Whitney U test.

3. Results

Table 1 shows distribution of tuberculosis patients according to age, gender, education, vaccination, presence of oral problem, oral hygiene practices, visits to dentists, use and awareness for tobacco, and presence of other disease. 62.9% of total tuberculosis patients complained of one or more oral

Table 1 – Demographic details and assessment of oral health awareness among tuberculosis patients (n = 210).

| | |
|---------------------------------|---|
| Age in years; average (max-min) | 33.64 (13-70) |
| Gender | Male 56.7%, female 43.3% |
| Education | Illiterate 44.3%, primary 31.4%, high school 20.5%, degree 3.8% |
| BCG vaccinated patients | 93 (44.3%) |
| Oral problem present | 132 (62.9%) |
| Common oral problem present | Tooth pain 45 (34%), gum bleeding 43 (32.6%), sensitivity 20 (15.2%), food impaction 14 (10.6%) |
| Cleaning method | Brush 92 (43.8%), wooden stick (datun) 6 (2.9%), finger 32 (15.2%), none 2 (1%) |
| Dentifrice | Paste 144 (68.6%), powder 55 (26.2%), none 9 (4.2%) |
| Visit to dentist | Never 177 (84.3%), on problem 33 (15.7%) |
| Tobacco use | 102 (48.6%) |
| Tobacco awareness | 77 (36.7%) |
| Frequency of teeth cleaning | Once 195 (92.9%), twice 13 (6.2%), never 2 (1%) |
| Frequency of tongue cleaning | Daily 45 (21.4%), never 146 (69.5%), rarely 19 (9%) |
| Other findings | HIV 16 (7.62%), SMF 10, lymph node enlargement 36 (17.1%), oral ulcer 6 (2.9%) |

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