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SHORT COMMUNICATION

Prevalence of pulmonary tuberculosis among the Bharia, a primitive tribe of Madhya Pradesh, central India

V. G. Rao,* J. Bhat,* R. Yadav,* P. G. Gopi,† N. Selvakumar,† D. F. Wares‡

*Regional Medical Research Centre for Tribals, Indian Council of Medical Research (ICMR), Jabalpur, †Tuberculosis Research Centre, ICMR, Chennai, ‡Office of the World Health Organization Representative to India, New Delhi, India

SUMMARY

A cross-sectional survey was undertaken to estimate the prevalence of pulmonary tuberculosis (TB) among the primitive Bharia tribe of Madhya Pradesh, India. Virtually the entire community in Patalkot valley of Chhindwara District was covered. Individuals aged ⩾15 years were questioned about chest symptoms relating to TB. Sputum samples were collected and examined by smear microscopy and culture. The overall prevalence of pulmonary TB was found to be 432 per 100 000 population —not dissimilar to that seen in the wider population in India. There is, however, an urgent need to strengthen TB services in the area to improve access for this group.

KEY WORDS: pulmonary tuberculosis; tribal; Bharia; central India

INDIA is a vast country inhabited by diverse groups of people, with a wide variety of sociocultural backgrounds. Tribal populations are one such group that share common cultural and socio-religious beliefs, reside in particular geographical areas and practise endogamy. Three tribal populations in the central Indian state of Madhya Pradesh are identified as 'primitive' because of their relative socio-economic backwardness, isolation and neglect in the past.[1] One of these three tribes, the Bharia, inhabit Patalkot valley in the Chhindwara District of Madhya Pradesh.

Although tuberculosis (TB) remains a major public health problem in India, information on the TB situation in the tribal populations is limited to a few studies.[2–5] Apart from data generated a decade ago on the Saharia, one of the primitive tribes of Madhya Pradesh, no data exist on the TB situation in other primitive tribes of the state. The present survey was undertaken among the primitive Bharia tribal community of Patalkot to obtain information on their TB disease situation.

MATERIALS AND METHODS

Study area

The study was carried out in the villages of the Patalkot valley of Chhindwara District, Madhya Pradesh, from January to April 2008. Patalkot is a bow-shaped formation on the Satpura plateau, 62 km from the district headquarters, and spreads over an area of 79 km^2.

Methodology

There are 12 villages in the valley, with a total population of 2586 (1318 males and 1268 females). All the 12 villages were covered under the study. A house-to-house census was undertaken and all individuals in the household were registered. All individuals aged ⩾15 years were considered eligible for screening. Data were collected from such individuals and recorded in a precoded form. Informed written consent was obtained and the presence of chest symptoms such as cough, chest pain, fever and haemoptysis was elicited from all eligible individuals. Two sputum samples—one spot and one overnight—were collected from all symptomatic individuals and were examined by direct smear microscopy (Ziehl-Neelsen method) for acid-fast bacilli. The samples were also processed for culture by the modified Petroff's method and were examined for growth of *Mycobacterium tuberculosis* once a week for 8 weeks. A person with a bacteriologically positive result by smear and/or culture was considered a case of sputum-positive pulmonary TB. All cases were referred to the relevant health authorities for treatment under India's Revised National Tuberculosis Control Programme (RNTCP).

The study was approved by the Institutional Ethics Committee of the Regional Medical Research Centre

Correspondence to: V G Rao, Regional Medical Research Centre for Tribals, ICMR, Nagpur Road, PO Garha, Jabalpur 482 003, Madhya Pradesh, India. Tel: (+91) 761 237 0800/818; (+91) 942 515 8312. Fax: (+91) 761 267 2835. e-mail: drvgrao@rediffmail.com

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for Tribals, Indian Council for Medical Research, Jabalpur, India.

Statistical analysis

Data were double entered independently by two operators using the MicroPro DataStar (DOS version) (MicroPro International Corp, San Rafael, CA, USA) package, and were validated using an in-built programme and corrected if any discrepancy or error were found. SPSS package (version 13.0, Statistical Package for the Social Sciences, Chicago, IL, USA) was used to analyse the data. The prevalence of bacteriologically positive cases and 95% confidence intervals (95%CI) were calculated using appropriate formulae. The difference in proportions was tested for statistical significance using χ^2.

RESULTS

Coverage

Of 1443 individuals eligible for screening, 1390 (96.33%) were screened for symptoms. Of these, 92 (6.6%) were found to be eligible for sputum collection and sputum was collected from all of them. Coverage for symptom elicitation and sputum collection was above 95% (Table).

Prevalence of bacillary tuberculosis

Overall TB prevalence was found to be 432 per 100 000 population (95%CI 121–742). The prevalence was 188/100 000 in the 15–44 year age group compared to 1227 in the ≥45 year age group; the difference was statistically significant ($P < 0.05$).

DISCUSSION

In this first TB prevalence survey among the Bharia, a disadvantaged ethnic group of Madhya Pradesh, central India, high coverage for symptom screening and sputum collection was obtained despite the very difficult terrain and other challenges faced by the survey team. Compared to the overall prevalence of 432/100 000, the prevalence among the general population was estimated to be 241/100 000, assuming that the yield of cases among children is negligible. These results provide vital information on the TB disease burden among this isolated population.

Information on the TB situation among tribal populations is limited to a few reports. A study among the tribal population of Wardha District, Maharashtra, in the 1990s, reported a disease prevalence of 133/100 000.[2] In comparison, a more recent study among the tribal populations across the state of Madhya Pradesh reported a slightly higher prevalence of 387.[3] Studies from other parts of the country, however, have reported much higher prevalence rates among tribal communities: a survey conducted in 2001 reported a prevalence of 740/100 000 in the tribal community of Car Nicobar of Andaman & Nicobar Islands.[4] Another survey, again in Madhya Pradesh, reported a prevalence of 1270/100 000 in the Saharia primitive tribal community.[5]

In contrast, the results of the present study indicate that the TB disease burden among the Bharias of the central Indian state of Madhya Pradesh is not that different from the TB burden in the non-tribal population, as observed in other studies.[6–8] The findings nevertheless show that TB remains a major health problem in this ethnic group, and the situation could change for the worse if appropriate TB control measures are not taken in a timely manner. The Government of India's RNTCP has only recently been implemented, since 2003, in the survey area. It is therefore unlikely that TB prevalence in the community has as yet been affected by the RNTCP. Moreover, access to TB services by this community residing in an isolated valley appears difficult, as seen from the fact that only one sixth of the sputum-positive pulmonary TB patients identified were currently being treated under the RNCTP. Continued implementation of quality RNTCP TB services over a number of years is expected, however, to have an impact on the TB situation in the area.

The limitations of this study need to be considered when interpreting the results. Although nearly 100%

Table Village coverage and sputum-positive cases among the Bharia tribe of Patalkot

Serial no.	Village	Total population covered	Eligible for screening *n*	Population screened *n* (%)	Sputum eligible *n*	Sputum collected *n*	Sputum-positives* *n*
1	Kariyam Rathedh	425	232	226 (97.4)	14	14	1
2	Chimtipur	142	78	75 (96.2)	2	2	0
3	Khamarpur	343	168	162 (96.4)	19	19	2
4	Harra Kachhar	252	141	135 (95.7)	12	12	0
5	Sukhabhand Harmahu	144	81	76 (93.8)	11	11	0
6	Dhurani Dumani	80	51	46 (90.2)	4	4	0
7	Geldhubba	215	122	117 (95.9)	11	11	1
8	Ghatlinga	368	243	236 (97.1)	9	9	2
9	Gudichathari	276	159	155 (97.5)	4	4	0
10	Ghansaldhana Kundiya	321	168	162 (96.4)	6	6	0
Total		2566	1443	1390 (96.3)	92 (6.6)	92 (100)	6

*Includes smear- and/or culture-positive cases.

coverage of the population was achieved, the community is small and the number of cases detected very small. Despite this, the findings throw further light on the current TB situation in this isolated primitive tribal community of central India.

CONCLUSION

The findings suggest that the TB situation among the Bharia tribal community of central India is not that different from the situation among the non-tribal population of the country. There is, however, an urgent need to strengthen TB services to improve access to TB care by this group, and then maintain such services.

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RÉSUMÉ

Une enquête transversale a été entreprise pour estimer la prévalence de la tuberculose (TB) pulmonaire dans la tribu primitive Bharia de Madhya Pradesh, Inde. On a pu couvrir virtuellement la totalité de la collectivité dans la vallée Patalkot du district de Chhindwara. Les individus âgés de ⩾15 ans ont été interrogés sur les symptômes thoraciques liés à la TB. Des échantillons de crachats ont été recueillis et examinés par bacilloscopie des frottis et culture. La prévalence globale de la TB pulmonaire se situe à 432 pour 100 000 habitants et n'est pas différente de celle observée dans la population plus large de l'Inde. Il existe toutefois un besoin urgent de renforcer la fourniture de services TB dans la zone afin d'améliorer l'accessibilité de ce service pour ce groupe.

RESUMEN

Se realizó un estudio transversal con el fin de calcular la prevalencia de tuberculosis (TB) pulmonar en los Bharia, una tribu primitiva de Madhya Pradesh, India. Se estudió prácticamente toda la comunidad del valle de Patalkot en el distrito de Chhindwara en India. Se interrogó a las personas de ⩾15 años de edad sobre la presencia de síntomas respiratorios indicativos de TB. Se recogieron muestras de esputo para examen microscópico y cultivo. La prevalencia global de TB pulmonar fue de 432 por 100 000 habitantes, una proporción equivalente a la observada en la población general en India. Sin embargo, existe una necesidad urgente de fortalecer la prestación de servicios contra la TB en esta región, a fin de mejorar el acceso a la atención de este grupo de personas.