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Original Research Article

A cross sectional study to assess the diagnostic and management practices of general practitioners regarding tuberculosis in an urban slum of Mumbai, Maharashtra

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ABSTRACT

Background: India has large and growing private medical sector and it is observed that Private Practitioners are generally the first point of contact for significant proportion of patients with tuberculosis. Hence the present study was carried out to assess the diagnostic and management practices for tuberculosis among the private practitioners in an urban slum area.
Methods: A cross sectional study was conducted in the field practice area of Urban Health Centre attached to the teaching hospital and medical college. A total of 76 Private Practitioners practising in the field practice area were contacted, explained the purpose and benefits of the study, 67 private practitioners gave consent for involvement in the study. A semi structured and pretested questionnaire was used to interview the private practitioners. Data was analyzed by using SPSS software version 17.0.
Results: Among 67 Private Practitioners in the area only 19 (28.4%) doctors mentioned that they diagnose TB patients in their clinic and start the diagnosed TB patients on treatment. Persistent cough (97%), fever (86.5%), weight loss (58.2%) were the most common symptoms of TB identified by these doctors. The mean duration for suspecting TB mentioned was 3.79 weeks. Chest x-ray was the most common (85.1%) investigation advised. HRZE was the drug regimen of choice whereas few doctors gave various anti-TB drugs including 2nd line drugs like kanamycin, PAS, cycloserine to their patients.
Conclusions: In present study showed majority of the private practitioners are neither updated nor very particular about the diagnosis and correct regimen of anti TB therapy. A few doctors also used 2nd line anti-TB drugs drugs like kanamycin, PAS, cycloserine to their patients which shows the likely irrational use of the few available anti-tuberculosis drugs, which may favour the emergence and spread of drug resistance.

Keywords: TB, RNTCP, DOTS, Private practitioners

INTRODUCTION

India has one of the largest private health care sectors in the world. This sector is often the first point of contact for a significant number of TB suspects and patients. Because of their flexible timings and easy accessibility, they are popular among patients.[1] Various studies assessing the health seeking behaviour of TB cases have indicated that 60% of the patients with a long standing cough and seeking health care have private practitioners

as their first contact due to convenience, hours of operation and confidentiality. Another study has noted that 80% to 85% of urban patients with tuberculosis first went to a private practitioner. This situation is true across all socio-economic strata in both rural and urban areas.[2]

It is estimated that about a third of the total tuberculosis cases of India are located in urban areas: metropolitan cities, their suburbs and slums. Risk factors for urban tuberculosis infection like malnutrition, overcrowding, ill ventilated houses, cramped and poorly ventilated work places and stress are highly correlated to the living conditions of the urban poor.[2]

Majority of the private practitioners are neither updated nor very particular about the doses and latest regimen of anti TB therapy. In this context, it becomes necessary to conduct a study in an urban slum area, to assess the diagnostic and management tuberculosis patients among the private practitioners.

METHODS

The study was conducted in the field practice area of Urban Health Centre attached to the teaching hospital and medical college. Urban Health Centre is situated in the slums about 35 km from the teaching institute in a metropolitan city.

Urban Health Centre provides curative, preventive and promotive health services to the urban slum population in the surrounding area and conducts daily out-patient services viz General OPD, pediatrics OPD, STI OPD, Chronic and specialist OPDs. National Health Programme like immunization, RNTCP and AIDS control programmes are also implemented. Chest symptomatic screened in General OPD are referred to TB OPD daily for consultation. Lab services for sputum microscopy in form of Designated Microscopy Centre & DOT centre for the catchment area are available in Urban Health Centre. One TB health visitor is also provided for effective DOT services.

The field practice area of Urban Health Centre consists of 5 main areas & has approximately 1.5 lakh population.

The field area is divided into following colonies

1. New collectors compound (NCC)
2. Municipal housing board (MHB)
3. Ambujwadi
4. Maharashtra housing and Area Development Authority (MHADA)
5. Squatters colony

Study design

Community based cross sectional study.

Sampling method

Universal sampling method.

Study participants

A total of 76 private practitioners (PPs) were practising in the field practice area as per the list of private practitioners maintained at the Centre. They were contacted, explained the purpose and benefits of the study and the informed consent taken. 67 private practitioners gave consent for involvement in the study. All these private practitioners were interviewed and included in the study.

Inclusion criteria

Inclusion criteria were general practitioners of all the streams allopathy, homeopathy, ayurvedic practising in the field practice area of Urban Health Centre.

Exclusion criteria

Exclusion criteria were all specialists of any stream, general practitioners who did not consent.

Study period

Study Period was one year from July 2011 to December 2011.

Sample size

Universal sampling method was used for sample selection. All the 76 private practitioners in the area were contacted and enquired about their willingness to involve in the study. 67 Private Practitioners gave consent for their involvement in the study from the following areas.

Data was analyzed by using SPSS software version 17.0.

RESULTS

Table 1: Age and gender distribution of private practitioners.

Age group (years)	Sex		Total
	Male	Female	
≤ 30	8 (14.8%)	7 (53.8%)	15 (22.4%)
31-40	25 (46.3%)	4 (30.8%)	29 (43.2%)
41-50	16 (29.6%)	1 (7.7%)	17 (25.4%)
≥ 51yrs	5 (9.3%)	1 (7.7%)	6 (9.0%)
Total	54 (80.6%)	13 (19.4%)	67 (100.0%)

Mean =38.7, SD =8.66

In Table 1, among 67 Private Practitioners in the area, 54 (80.6%) were males and the majority 43.4% belonged to the age group of 31 to 40 years. The mean age of doctors was 38.7 years.

In Table 2, of 67 private practitioners, most of the doctors (80.6%) belonged to AYUSH stream, with 26 (38.8%) being Homeopathic graduates and 17 (25.4%) being ayurvedic graduates. Only 4 (6%) doctors had allopathic degree. The higher proportion of AYUSH degrees was observed in both the genders.

Table 2: Educational qualification of private practitioners.

Educational qualification	Sex		Total
	Male	Female	
MBBS	3 (5.6%)	1 (7.7%)	4 (6.0%)
BAMS	13 (24.1%)	4 (30.8%)	17 (25.4%)
BHMS	19 (35.2%)	0	19 (28.4%)
BUMS	9 (16.7%)	2 (15.4%)	11 (16.4%)
DHMS	5 (9.3%)	2 (15.4%)	7 (10.4%)
Other	5 (9.3%)	4 (30.8%)	9 (13.4%)
Total	54 (80.6%)	13 (19.4%)	67 (100.0%)

Table 3: Daily OPD patient with private practitioners.

Number of patients seen daily	Frequency	Percentage (%)
1-10	1	1.5
11-20	42	62.7
21-30	16	23.8
31-40	4	6.0
≥41	4	6.0
Total	67	100.0

Mean =23.1, SD =13.8.

Table 4: Monthly TB patients diagnosed by private practitioners.

Number of patients diagnosed of TB in a month	Frequency N=19/67	Percentage (28.4%)
1-2	12	63.2
3-4	5	26.3
4-5	2	10.5
Total	19	100.0

Mean =0.55, SD =0.926, range =3.

Table 5: Symptoms of pulmonary TB according to private practitioners.

Symptoms of pulmonary TB	Frequency	Percentage (%)
Persistent cough	65	97.0
Fever	58	86.5
Weight loss	39	58.2
Loss of appetite	12	17.9
Chest pain	5	7.4
Plural effusion	3	4.4
Lymphadenopathy	3	4.4
Haemoptysis	2	2.9
Recurrent illness	2	2.9
Weakness	2	2.9

*The percentages may exceed more than 100% due to multiple responses.

In Table 3, daily OPD of private practitioners ranged from 10 to 70 and an average of 23.1 patients, (SD 13.8) was seen by the doctors.

In Table 4, only 19 (28.4%) doctors mentioned that they diagnose TB patients in their clinic and start the diagnosed TB patients on treatment. The remaining 48 (71.6%) doctors referred such symptomatic patients to specialist doctors for diagnosis. The doctors diagnosed 1-5 patients of TB in a month in their clinic. It is observed that mainly AYUSH doctors were diagnosing TB patients in their clinics.

In Table 5, persistent cough (97%), fever (86.5%), weight loss (58.2%) were the most common symptoms of TB identified by the private practitioners while loss of appetite, chest pain were considered by some doctors (17.9% and 7.4%) respectively.

In Table 6, optimum duration for suspecting TB of upto 2 weeks was mentioned by 32.8% doctors, and 3 weeks by 26.8% doctors. However, 40.4% doctors stated more than 3 weeks of duration. The mean duration mentioned was 3.79 weeks.

In Table 7, very few 16 (23.9%) doctors mentioned getting extra-pulmonary TB cases in their OPD & said that they refer these patients to specialist doctors. Most common extra-pulmonary TB was cervical lymphadenopathy by 9 (56.2%) doctors.

In Table 8, chest x-ray was the most common 57 (85.1%) investigation advised by private practitioners, followed by Mantoux test by 46 (68.7%) doctors. Sputum microscopy was advised by 45 (67.2%) doctors. Blood investigations CBC, ESR were also preferred tests.

Table 6: Symptoms duration for suspecting TB according to PPs.

Duration of symptoms	Frequency	Percentage (%)
Up to 2 weeks	22	32.8
2-3 weeks	18	26.8
3-4 weeks	15	22.4
4-5 weeks	2	3.0
5-6 weeks	3	4.5
6-7 weeks	2	3.0
> 7 weeks	5	7.5
Total	67	100.0

Mean=3.79, SD=2.89, Median=3.

Table 7: Extra-pulmonary TB cases seen by private practitioners.

Extra pulmonary TB cases seen by PPs	Frequency (N =16/67)	Percentage (23.9%)
Cervical lymphadenopathy	9	56.2
Bone TB	3	18.7
Plural effusion	2	12.5
Brain TB	1	6.3
Abdominal TB	1	6.3
Total	16	100

Table 8: Diagnostic investigations advised for pulmonary TB by private practitioners.

Investigations *	Frequency	Percentage (%)
Chest X-ray	57	85.1
Mantoux	46	68.7
Sputum	45	67.2
CBC	43	64.2
ESR	28	41.8
TB antigen	5	7.5

CBC: Complete blood count; ESR: Erythrocyte sedimentation rate, *The percentages may exceed more than 100% as the responses were multiple.

In Table 9, only 19 (28.4%) doctors stated that they start TB patients on treatment in their clinic. Most of the doctors 12 (63.0%) used HRZE as the drug regimen of choice whereas other doctors gave various anti-TB drugs including 2nd line drugs like kanamycin, PAS, cycloserine to their patients. Duration of treatment mentioned for HRZE regime was 9-10 months, while other doctors (37%) treated TB patients with regimes containing other drugs for 1-2 months.

In Table 10 and 11 (57.9%) doctors cited relief from symptoms as the criteria for monitoring improvement in TB patients on treatment.

All the doctors stated that investigations had to be repeated at the end of the treatment. The most preferred investigations advised were combination of X-ray chest & CBC, ESR by (36.8%) doctors.

Table 9: Drug regimen by private practitioners for diagnosed case of TB.

Treatment regimen	Duration (in months)	Frequency (N =19/67)	Percentage (28.4%)
HRZE	9 to 10	12	63.0
Inj Amikacin	1	2	10.5
Inj Kanamycin	1	1	5.3
Tab Levofloxacin	1	1	5.3
Inj Kanamycin, Ofloxacin	1	1	5.3
PAS	1.5	1	5.3
Inj Kanamycin, cycloserine	1	1	5.3
Total		19	100.0

Abbreviations used: H: Isoniazid; R: Rifampicin; Z: Pyrazinamide; E: Ethambutal; PAS: Para-aminosalicylic acid.

Table 10: Monitoring of improvement in TB patients on treatment

	Frequency (N=19/67)	Percentage (28.4%)
A: Clinical improvement		
Symptom relief	11	57.9
Weight gain, increased appetite	3	15.8
No cough or any chest symptoms	2	10.5
Patient look healthy	2	10.5
Patients feel better and can do his routine work	1	5.3
Total	19	100.0
B: Investigations		
X-ray chest, CBC, ESR	7	36.8
X-ray chest	4	21.1
Mantoux, CBC,ESR	4	21.1
Sputum and X-ray chest	2	10.5
Mantoux, TB antigen	2	10.5
Total	19	100.0

DISCUSSION

The study was conducted among the private practitioners of all the streams practicing in the field practice area of Urban Health Centre, to assess diagnostic and management practices for TB patients. A total of 67 private practitioners participated in the study.

Among 67 doctors practicing in the area, 80.6% were males and the majority 43.3% belonged to the age group of 31 to 40 years. The mean age of the doctors was 38.7 years.

Most of the doctors (80.6%) belonged to AYUSH stream among both the genders, with 38.8% being Homeopathic graduates, 25.4% being Ayurvedic graduates and only 6% of Allopathic graduates. A similar AYUSH preponderance was observed in the study by Srivastava et al in Gwalior District with 52% of Ayurvedic and 41.3% of homeopathic doctors.[3]

The daily patient turnover at the private practitioners in the present study ranged from 10 to 70 patients and the average number of patients were 23.1 (SD-13.8).

Only 28.4% doctors mentioned that they diagnose TB patients in their clinic and start the diagnosed TB patients on treatment. These doctors diagnosed 1-5 patients of TB in a month in their clinics. The remaining 71.6% doctors referred the symptomatic patients to the specialist doctors for diagnosis.

In the study by Shimeles et al, 81.5% of the private practitioners mentioned diagnosing at least two to five TB cases in their clinic per week.[4] In another study by Khan et al in Karachi, 85.1% physician mentioned diagnosing 4–5 TB patients in a month.[5] About 41.7% doctors treated TB patients themselves while remaining referred their patients to specialists.

Persistent cough (97%), fever (86.5%), weight loss (58.2%) were the most common symptoms of TB identified by the private practitioners while loss of appetite, chest pain were considered by some doctors (17.9% and 7.4%) respectively. Optimum duration of up to 2 weeks for suspecting TB was mentioned by 32.8% doctors and 3 weeks by 26.4% doctors. However, 40.4% doctors stated more than 3 weeks of duration. The mean duration was 3.79 weeks.

Present study findings are similar to the study by Yimer et al wherein three weeks' duration of cough was considered by 52.7% of the private practitioners for suspecting TB.[6] 35.7% doctors mentioned cough for up to two weeks' duration while 11.6% stated cough of ≥4 weeks' duration. In the study by Khan et al majority of physicians were aware that cough (95%), fever (86.7%) and weight loss (89%) were the main presenting symptoms of TB.[5] Although a majority of physicians (67.5%) knew that TB should be suspected if the clinical symptoms last 2–4 weeks, 29.2% incorrectly thought the symptoms should last for more than 4 weeks before the diagnosis of TB could be considered.

Chest x-ray was the most common investigation advised by 85.1% doctors, followed by Mantoux test by 68.7% doctors. Sputum microscopy was advised by 67.2% doctors. Blood investigations CBC, ESR were also commonly advised. Similar findings are seen in the study by Portero et al and Prasad et al where 87.9% doctors and almost all (99.8%) doctors respectively used chest X-ray for diagnosis of TB.[7,8] The study by Khan et al showed that 58.3% of physicians used sputum microscopy for diagnosing TB.[5] Singla et al showed that 89.5% doctor recommended chest X-ray as a primary investigation for diagnosing TB and sputum microscopy was used by only 12% of the PPs.[9]

Few private practitioners (23.9%) mentioned seeing extra-pulmonary TB cases in their OPD and said that they refer these patients to specialist doctors for further investigation and management. Most common extra-pulmonary TB noticed was cervical lymphadenopathy by 56.2% doctors.

Only 28.4% doctors in the study area stated that they start TB patients on treatment in their clinic. Seven different anti TB treatment regimen were practiced by these doctors. Most of the doctors 63.0% used HRZE as the drug regimen of choice whereas other doctors gave various anti-TB drugs including 2nd line drugs like kanamycin, PAS, cycloserine to their patients. Duration of treatment mentioned for HRZE regime was 9-10 months, while remaining doctors (37%) treated TB patients with regimes containing other drugs for 1-2 months. This shows the likely irrational use of the few available anti-tuberculosis drugs, which may favour the emergence and spread of drug resistance.

In the study conducted by Udwadia et al 106 doctors prescribed 63 different drug regimens for treatment of TB whereas Uplekar et al in their study of prescribing behaviour of private practitioners, reported that 100 doctors provided 80 different prescriptions.[10, 11] Similar study undertaken in Mumbai and rural Pune, by Uplekar et al reported 105 private practitioners giving 79 diverse prescriptions.[12]

In the present study, relief from symptom was the criteria used by 57.9% doctors for monitoring improvement in the patients on treatment. All the doctors stated that investigations had to be repeated at the end of the treatment. The most preferred investigations advised was combination of X-ray chest and CBC, ESR by (36.8%) doctors followed by X-ray chest by 21%.

CONCLUSION

In the present study it is observed that about 1/3 doctors mentioned that they diagnose TB patients in their clinic and start the diagnosed TB patients on treatment; while majority of the doctors referred the symptomatic patients to specialist doctors.

Persistent cough, fever, weight loss were the most common symptoms of TB identified by the private practitioners. Optimum duration for suspecting TB of 2-3 weeks was mentioned by about two third doctors. The mean duration mentioned was 3.79 weeks. Majority of doctors advised chest X-ray as the most common investigation by followed by Mantoux test.

About one third of doctors stated that they start TB patients on treatment in their clinic. Seven different anti TB treatment regimen were practiced by these doctors; the most common being HRZE drug regimen. A few doctors also used 2nd line anti-TB drugs drugs like kanamycin, PAS, cycloserine to their patients for 1-2 months. This shows the likely irrational use of the few available anti-tuberculosis drugs, which may favour the emergence and spread of drug resistance also majority of the private practitioners are neither updated nor very particular about the diagnosis and correct regimen of anti TB therapy.

Recommendations

1. Regular sensitization trainings of private practitioners on rationale diagnostic and management practices for TB adhering to International Standards of TB Care (ISTC) should be organized by programme officials.
2. Mechanisms for regular updates regarding TB & DOTS should be established to keep private practitioners informed about newer guidelines.
3. Regular monitoring and supervision of public private sector mix (PPM) activities will help strengthen the efforts of TB control towards achieving MDG goals.

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