

Do private doctors follow national guidelines for managing pulmonary tuberculosis in Pakistan?

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هل يطبق الأطباء في القطاع الخاص الدلائل الإرشادية الوطنية لتشخيص ومعالجة السل الرئوي في باكستان؟

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الخلاصة: يؤدي الأطباء في القطاع الخاص دوراً هاماً في تقديم الرعاية الصحية لمرضى السل الرئوي، وقد أجريت دراسة مسحية حول المعارف والممارسات في مدينتين في باكستان، وقد كان طبيب واحد من بين 245 طبيباً يعرف أن السعال لمدة تزيد على ثلاثة أسابيع هو العرض الرئيسي الوحيد الذي ينبه إلى السل الرئوي. ويقوم معظم هؤلاء الأطباء بتشخيص المرض (80%) ومعالجتهم (83%) دون تحويلهم. ولا يعتمد أكثر من 1% من هؤلاء الأطباء على الفحص المجهرى للبلغم للتشخيص. ولم يكن أي طبيب منهم يتبع الدلائل الإرشادية الوطنية لمكافحة السل عن وصف الأدوية، ولم يكن أي منهم يتأكد من امتثال المرضى للمعالجة بالأدوية المضادة للسل تحت إشراف طبيب أو عامل صحي. ولم يكن أكثر من 3% من هؤلاء الأطباء يحتفظ بسجلات خاصة بمرضى السل الرئوي. ولم يقيم أحد منهم بتقييم كفاءة ونجاعة المعالجة بالاعتماد على الفحص المجهرى للبلغم لوحده، فيما كان معظمهم (76%) منهم يعتمد على التقييم السريري (الإكلينيكي) لوحده.

ABSTRACT As private medical practitioners play a major role of in providing care to pulmonary tuberculosis (TB) patients, a survey was made of knowledge and practice in 2 cities in Pakistan. Only 1 of the 245 physicians was aware that cough > 3 weeks alone is the main symptom suggesting pulmonary TB. The majority diagnosed (80%) and treated (83%) cases themselves without referral. Less than 1% relied on sputum microscopy alone for diagnosis. None of the practitioners were following National TB Control guidelines for prescribing drugs and none ensured compliance with anti-TB treatment under supervision of a doctor/health worker. Only 3% kept records of pulmonary TB patients. None of the physicians assessed the effectiveness of treatment with sputum microscopy alone; the majority (76%) used only clinical assessment.

Les médecins privés suivent-ils les directives nationales pour le diagnostic et le traitement de la tuberculose pulmonaire au Pakistan ?

RESUME Etant donné que les médecins privés jouent un rôle important dans la prestation de soins aux patients atteints de tuberculose pulmonaire, une étude a été réalisée sur les connaissances et les pratiques dans 2 villes du Pakistan. Un seul médecin sur les 245 savait qu'une toux seule de plus de 3 semaines était le principal symptôme évocateur d'une tuberculose pulmonaire. La majorité d'entre eux diagnostiquaient (80 %) et traitaient (83 %) les cas eux-mêmes sans les orienter vers un spécialiste. Moins de 1 % s'appuyaient sur la microscopie des expectorations seule pour le diagnostic. Aucun des médecins ne suivait les directives du programme national de lutte antituberculeuse pour la prescription des médicaments et aucun n'assurait l'observance du traitement antituberculeux sous surveillance d'un médecin/agent de santé. Seulement 3 % des médecins tenaient des dossiers sur les patients atteints de tuberculose pulmonaire. Aucun des médecins n'évaluait l'efficacité du traitement par l'examen microscopique des expectorations ; la majorité (76 %) utilisait uniquement l'évaluation clinique.

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Introduction

Tuberculosis (TB) is the largest single infectious cause of death among young people and adults in the world, accounting for nearly 2 million deaths a year; about a third of the world's population harbours the infection [1]. This large pool of infected people means that TB will continue to be a major problem in the foreseeable future [2]. While they belong to all socioeconomic strata, the great majority of TB patients are poor [3]. Due to these and many other relevant factors, the TB epidemic was declared a global emergency by the World Health Organization (WHO) in 1993 [4].

TB remains one of the major public health problems in Pakistan. Moreover, WHO has identified Pakistan as among the countries with a high burden of disease [5]. According to the Pakistan national TB survey in 1987–88 [6] the prevalence of sputum-positive or open cases of pulmonary TB was estimated to be 0.17 per 1000 population. These open cases form a reservoir of infection in the community and are the source of person-to-person transmission.

In Pakistan where only 36% of the population is literate and 28% is living below the absolute poverty line [7], the private sector makes a major contribution to providing health care for all kinds of health problems including the management of TB cases [8]. Private medical practitioners in Pakistan, as in other developing countries, comprise a wide range of health care providers, ranging from unqualified and unskilled practitioners to highly qualified medical postgraduates. However, a large number are in the former category, who are readily available and accessible especially in the rural settings where 70% of Pakistan's population lives. The absence of any effective regulatory mechanism further worsens the situation. In India it has also been noted

that the private health sector in developing countries tends to be a relatively amorphous, unorganized and dynamic entity comprising various provider types of different sizes and characteristics [9].

There is increasing interest in many countries about the role of the private health sector in TB care [7]. In a study of health-seeking behaviour in Pakistan [10], it was found that 90% of TB patients had initially contacted a private practitioner before visiting a TB centre. Similarly, another study in a different setting also established that 80% of hospitalized TB patients had first consulted private practitioners [11]. Moreover, a study in India observed that 86% of TB patients had first consulted a private practitioner [12]. Yet TB patients attending the private sector may not be receiving the correct treatment according to the National Tuberculosis Control Programme guidelines.

The present study was carried out to determine the knowledge and practices of private general medical practitioners towards diagnosis, treatment and follow-up of pulmonary TB patients in 2 cities of Pakistan. In addition, we intended to collect baseline information to plan future interventions to involve the private sector in the National TB Programme.

Methods

The study design was a descriptive cross-sectional survey. The study participants were selected from all formally qualified medical graduates who were practising medicine on a full- or part-time basis outside the government (public) sector in the 2 largest cities of Pakistan: Rawalpindi and Lahore. The basic criterion for inclusion in the study was that the private medical practitioners had managed at least 1 pulmonary TB patient during the previous year.

Out of a total population of 884 private general medical practitioners, 245 were randomly selected to be included in the study. This sample size was estimated at a confidence level of 95%, at 20% expected frequency of consistency with National TB Programme guidelines, and a power of 80%.

A standardized questionnaire on the relevant themes and issues was used in this study. Questions were mostly dichotomous choice with some rating scale questions. Questions were asked about diagnosis (knowledge about symptoms suggestive of TB, diagnostic and referral practices, diagnostic facilities), treatment (usual prescribing practices, knowledge about how to categorize patients for treatment, frequency of dispensing treatment), follow-up (ensuring compliance, record-keeping, assessing effectiveness of treatment, defaulter tracing and family contact tracing), and awareness of National TB Control Programme guidelines.

The responses were analysed by city and by qualification status of the general practitioner, i.e. medical graduate only or postgraduate qualification. A 95% confidence interval was calculated where relevant. The responses were compared for significant differences using Pearson chi-squared. Data were analysed using *Epi-Info*, version 6.04c and *SPSS*, version 10.0.5. Frequency tables were prepared for most of the variables.

Results

The mean age of the 245 private practitioners was 38 years, ranging from 23 to 70 years. A total of 232 of them (95%) were below the age of 60 years; female practitioners comprised 20% (48). All of the sample were medical graduates; the year of graduation ranged from before 1960 to 2001. A

postgraduate degree or diploma was held by 37 (15%); 6 (2%) had a postgraduate qualification in medicine and 31 (13%) had other qualifications (none of them had a postgraduate diploma or degree in chest diseases). There were 100 practitioners in Rawalpindi and 145 in Lahore. The proportion holding a postgraduate degree or diploma was 17% and 14% in Rawalpindi and Lahore respectively.

Of the respondents, 58% from Rawalpindi and 41% from Lahore had provided care to 1–5 pulmonary TB patients during the previous 3 months, compared with 34% and 41% respectively who had seen 6–10 patients.

Diagnosis

Knowledge about symptoms

In response to the question “In your opinion, what are the main symptoms that suggest pulmonary TB in adults?”, only 1 out of 245 private practitioners mentioned cough for more than 3 weeks. Nearly half (45%) of the physicians described a combination of cough, haemoptysis, weight loss, night-sweating and lymph node enlargement, whereas 30% considered cough and weight loss as the main symptoms suggestive of pulmonary TB.

The knowledge of physicians in the 2 cities about the main symptoms suggestive of pulmonary TB was significantly different ($P = 0.010$). More practitioners in Lahore considered cough and weight loss as the main symptom, whereas in Rawalpindi it was cough, haemoptysis and weight loss. There was no significance difference between graduates and postgraduates in Rawalpindi ($P = 0.529$) or in Lahore ($P = 0.335$) about knowledge of symptoms. None of the postgraduates mentioned cough more than 3 weeks as the main symptom suggestive of pulmonary TB.

On prompting for the duration of cough before suspecting pulmonary TB, only 21% of doctors (25% in Rawalpindi and 18% in Lahore) mentioned cough of 3 weeks in suspecting TB. Of the 37 post-graduates, only 7 stated that cough for 3 weeks is suggestive of TB. However, 45% of respondents overall stated that cough for 4–6 weeks and 14% that cough for 2 weeks is suggestive of TB. In both the cities, like graduates, the majority of post-graduates were also of the opinion that a cough for 4–6 weeks should be suspected for pulmonary TB. There was no difference in knowledge about duration of cough between graduates and postgraduates in Rawalpindi ($P = 0.923$) and Lahore ($P = 0.945$).

Diagnostic practices

Questions about their practices when they suspected a patient is suffering from pulmonary TB showed that 80% of respondents diagnosed the patient themselves, 11% diagnosed the patients themselves and then referred them to a TB centre or con-

sultant and 8% referred the patient straight away. However, a significant difference ($P < 0.0001$) was noted between the 2 cities in relation to patient referral. In Lahore the majority of practitioners (90%) diagnosed cases themselves, whereas in Rawalpindi 66% relied on their own diagnosis and 24% initially diagnosed themselves and then referred the patients. In Rawalpindi 82% of postgraduates compared with 95% in Lahore diagnosed the patients themselves (Table 2). Graduates referred more patients than the postgraduates in Rawalpindi ($P = 0.013$), whereas in Lahore no difference ($P = 0.923$) was observed between graduate and postgraduate referral practices.

For diagnosis of pulmonary TB only 1 private medical practitioner (a graduate) out of 245 relied on sputum microscopy alone. In response to the question, "While diagnosing a suspected case of pulmonary TB, what actions do you usually take?" the majority of respondents (45%) reported using a combination of tests, i.e. clinical examination, tuberculin test, sputum microscopy, blood erythrocyte sedimentation

Table 1 Knowledge of private practitioners about duration of cough before suspecting tuberculosis by city and by qualification

Duration of cough	Graduates		Postgraduates		Total		P-value ^a
	No.	%	No.	%	No.	%	
<i>Rawalpindi</i>	<i>(n = 83)</i>		<i>(n = 17)</i>		<i>(n = 100)</i>		0.923
2 weeks	14	17	2	12	16	16	
3 weeks	21	25	4	24	25	25	
4–6 weeks	45	54	10	59	55	55	
7–9 weeks	3	4	1	6	4	4	
<i>Lahore</i>	<i>(n = 125)</i>		<i>(n = 20)</i>		<i>(n = 145)</i>		0.945
2 weeks	15	12	2	10	17	12	
3 weeks	23	18	3	15	26	18	
4–6 weeks	45	36	9	45	54	37	
7–9 weeks	42	34	6	30	48	33	

n = total number of respondents.

^aGraduates versus postgraduates.

Table 2 Practices of private practitioners for action taken on suspecting pulmonary tuberculosis by city and by qualification

Action taken	Graduates		Postgraduates		Total		P-value ^a
	No.	%	No.	%	No.	%	
<i>Rawalpindi</i>	(n = 83)		(n = 17)		(n = 100)		0.013
Diagnose themselves	52	63	14	82	66	66	
Diagnose themselves then refer	22	27	2	12	24	24	
Refer immediately	9	11	1	6	10	10	
<i>Lahore</i>	(n = 125)		(n = 20)		(n = 145)		0.923
Diagnose themselves	112	90	19	95	131	90	
Diagnose themselves then refer	4	3	1	5	5	3	
Refer immediately	9	7	0	–	9	6	

n = total number of respondents.

^aGraduates versus postgraduates.

rate (ESR), and chest X-ray. Table 3 summarizes the responses by city and by qualification. In Rawalpindi, the difference among graduates and postgraduates was significant ($P = 0.044$), since more graduates preferred clinical examination and chest X-ray, but the difference was not significant in Lahore ($P = 0.717$).

Diagnostic facilities

Only 5 out of 245 private medical practitioners had facilities for sputum examination. Responding to the question, "Which facilities do you have for diagnosing pulmonary TB patients at your clinic?" 92% of doctors in Rawalpindi and 86% in Lahore stated that they did not have any facility at their clinics. Only 8% had the facility to perform ESR. Similarly, 1 respondent in Rawalpindi and 3 in Lahore had X-ray facilities. Among the 5 who had sputum examination facilities, only 2 had used sputum microscopy in the process of diagnosis. Among the postgraduates, only 1 had a facility for blood ESR in Lahore and 1 had a chest X-ray facility in Rawalpindi.

In response to the question, "If none, where do you usually send your patients for laboratory investigations?" 61% of private medical practitioners in Rawalpindi and 76% in Lahore referred their patients to private laboratories. Respectively, 13% and 19% stated that they sent their patients to a public laboratory, whereas 26% and 5% did not recommend any specific laboratory. Among the postgraduates, 53% in Rawalpindi and 90% in Lahore referred their suspected TB patients to a private laboratory for investigations. A small proportion of them (18% and 10% respectively) sent their patients to public facilities. In both the cities, the difference between graduates and postgraduates was not significant (Rawalpindi $P = 0.723$, Lahore $P = 0.250$).

Treatment

Referral practices

After the diagnosis was established, 83% of the private medical practitioners treated the pulmonary TB patients themselves; only 17% referred the patients (10% to a TB centre, 7% to a consultant or other non-

Table 3 Practices of private practitioners for actions taken to diagnose a suspected case of pulmonary tuberculosis by city

Diagnostic method	Rawalpindi (n = 100)		Lahore (n = 145)		Total (n = 245)		P-value ^a
	No.	%	No.	%	No.	%	
Sputum	1	1	0	–	1	0.4	0.009
Clinical	3	3	2	1.4	5	2	
Clinical + sputum	0	–	1	0.7	1	0.4	
Clinical + X-ray	11	11	6	4	17	7	
X-ray + ESR	11	11	38	26	49	20	
Clinical + sputum + X-ray + ESR	26	26	22	15	48	20	
Clinical + sputum + X-ray + ESR + TT	45	45	64	44	109	45	
Others ^b	3	3	12	9	15	6	

Sputum = sputum microscopy, clinical = clinical examination, TT = tuberculin test, ESR = erythrocyte sedimentation rate.

^aRawalpindi versus Lahore.

^bSerology, polymerase chain reaction, urine or blood tests.

n = total number of respondents.

specified referral). However, a significant difference between physicians in the 2 cities was found regarding referral to a TB centre or consultant (14% in Rawalpindi and 10% in Lahore) ($P < 0.0001$). When comparing the responses by qualification, it was observed that significantly more graduates and postgraduates in Rawalpindi (75% and 88%, $P = 0.014$) than in Lahore (89% and 90%, $P = 0.758$) treated patients themselves.

Information gathering

In response to the question “If you have to treat a new case of pulmonary TB, what information would you like to have before prescribing treatment?”, none of the doctors mentioned inquiring about the history of any previous anti-TB treatment. A total of 28% of private practitioners in each of the cities admitted that they did not know what to do. Information on family history

and socioeconomic status was considered important in Rawalpindi, whereas liver function tests and patient’s weight was believed to be essential in Lahore. These responses were significantly different between the cities ($P < 0.0001$). Among the postgraduates, 12% in Rawalpindi and 20% in Lahore admitted that they did not know what information was required. However, 35% of postgraduates in each of the cities considered family history and socioeconomic status to be of importance. The difference by qualification was significant in Lahore ($P = 0.043$) but not in Rawalpindi ($P = 0.156$).

Knowledge about categorization

In response to the question, “If you have to treat a new case of pulmonary TB, how do you categorize a patient based upon history and results of sputum microscopy, to select a treatment regimen?” most practitio-

ners (97%) admitted that they did not know about the system of categorizing pulmonary TB patients (98% in Rawalpindi and 96% in Lahore). Among the postgraduates, 82% in Rawalpindi and 95% in Lahore were unaware of how to categorize pulmonary TB patients for treatment. In Rawalpindi, more postgraduates were aware of categorization than were graduates ($P = 0.040$), whereas in Lahore being a postgraduate did not have any effect on knowledge about categorization ($P = 0.835$).

Practice of national treatment guidelines

None of the private practitioners in either of the cities were following the National TB Control Programme guidelines for prescribing treatment. For the initial phase, the majority (68%) prescribed a fixed-dose

combination of 4 drugs, whereas 12% prescribed combinations of 4 separate drugs and 15% 3 separate drugs. About 2% of practitioners also prescribed separate combinations of 5 drugs. These practices were significantly different in the 2 cities ($P = 0.001$).

When asked about the duration of the initial phase, 87% of respondents said they did not divide treatment into initial and continuation phases and kept the patients on continuous treatment with the same drugs until considered cured. Only 6% overall used an initial phase of 2 months duration (9% in Rawalpindi and 3% in Lahore, $P = 0.27$) (Table 4).

During the continuation phase, 42% of practitioners reported prescribing a fixed-

Table 4 Practices of private practitioners in initial and continuation phases of anti-tuberculosis treatment by city

Treatment duration	Rawalpindi (n = 100)		Lahore (n = 145)		Total (n = 245)		P-value ^a
	No.	%	No.	%	No.	%	
<i>Initial phase</i>							
2 months	9	9	5	3	14	6	0.27
3 months	5	5	1	0.7	6	2	
5 months	0	–	1	0.7	1	0.4	
6 months	0	–	3	2	3	1	
Continuous (until cured)	81	81	132	91	213	87	
Don't know	5	5	3	2	8	3	
<i>Continuation phase</i>							
< 5 months	0	–	2	1.4	2	1	0.27
6 months	5	5	1	0.7	6	2	
7 months	6	6	2	1.4	8	3	
8 months	0	–	1	0.7	1	0.4	
9 months	1	1	0	–	1	0.4	
Continuous (until cured)	83	83	136	94	219	89	
Don't know	5	5	3	2	8	3	

^aRawalpindi versus Lahore.

n = total number of respondents.

dose combination of 4 drugs and 29% a fixed-dose combination of 3 drugs, whereas 15% and 10% prescribed a combination of 4 and 3 separate drugs respectively. The difference was significant ($P < 0.0001$) between the 2 cities: in Lahore 58% of respondents preferred a fixed-dose combination of 4 drugs whereas in Rawalpindi 53% prescribed a fixed-dose combination of 3 drugs. Even some of those who recognized the initial phase of treatment did not follow any fixed duration of continuation treatment and thus 89% overall continued the treatment until the patient was considered cured (Table 4). Only 6 physicians (2.4%) prescribed anti-TB drugs for 6 months. It was noted that, irrespective of drug combinations used, all the private practitioners prescribed rifampicin during the continuation phase of treatment.

Dispensing treatment

In response to the question "How do you give anti-TB medicines to patients?" 97%

of respondents (96% in Rawalpindi and 98% Lahore, $P = 0.305$) revealed that they only prescribed the medicines and did not dispense them at their clinics. Only 2 out of 245 physicians called their patients daily to dispense medicines.

When asked "How often do you dispense/prescribe anti-TB medicines to the patients?" 62% revealed that they prescribed medicines on a fortnightly basis whereas 30% did it on a monthly basis. These practices were significantly different between the 2 cities ($P = 0.003$); in Rawalpindi more doctors prescribed on a fortnightly basis than did those in Lahore where a monthly system was more common (Table 5). None of the postgraduates and only 1 graduate in each city ensured they dispensed the medicines on a daily basis. The practices regarding frequency of prescribing/dispensing medicines between graduates and postgraduates were similar in Rawalpindi ($P = 0.399$) and Lahore ($P = 0.599$).

Table 5 Practices of private practitioners in frequency of prescribing anti-tuberculosis drugs by qualification and by city

Treatment frequency	Graduates		Postgraduates		Total	
	%	95% CI	%	95% CI	%	95% CI
<i>Rawalpindi</i>						
	<i>(n = 83)</i>		<i>(n = 17)</i>		<i>(n = 100)</i>	
Daily	1	-1 to 3	0	-	1	-1 to 3
Weekly	7	2 to 12	6	-5 to 17	7	2 to 12
Fortnightly	72	62 to 82	53	29 to 77	69	60 to 78
Monthly	16	8 to 25	35	12 to 58	19	11 to 27
Other	4	0 to 8	6	-5 to 17	4	0 to 8
<i>Lahore</i>						
	<i>(n = 125)</i>		<i>(n = 20)</i>		<i>(n = 145)</i>	
Daily	1	-1 to 3	0	-	1	-1 to 3
Weekly	4	1 to 7	0	-	3	0 to 6
Fortnightly	55	46 to 64	70	50 to 90	57	49 to 65
Monthly	40	31 to 49	30	10 to 50	39	31 to 47

n = total number of respondents.

Follow-up

Ensuring compliance

None of the medical practitioners in either city ensured the intake of anti-TB medicines under the supervision of a doctor or a health worker, i.e. none of the private medical practitioners observed the DOTS strategy [directly observed treatment, short course].

In responding to the question, "Do you ensure that the patients take all the prescribed/ dispensed anti-TB medicines regularly?" 15% of private medical practitioners in both the cities admitted that they did not do anything about ensuring the intake of medicines, whereas 85% in both the cities simply stated that they ensured it. While answering the question, "How do you ensure that the patients take medicines?" 38% of respondents in Rawalpindi and 31% in Lahore stated that they ensured it through relatives of the patients (Table 6). The other means employed were clinical assessment (17%) and personal counselling (31%).

Table 6 Practices of private practitioners in ensuring compliance with anti-tuberculosis drugs by qualification and city

Method of ensuring compliance	Overall responses	
	%	95% CI
<i>Rawalpindi</i> (n = 85)		
Personal counselling	33	24 to 43
Clinical assessment	9	3 to 15
Relatives	38	28 to 48
Others	20	12 to 28
<i>Lahore</i> (n = 123)		
Personal counselling	30	23 to 37
Clinical assessment	22	15 to 29
Relatives	31	23 to 39
Others	17	11 to 23

n = total number of respondents.

Assessing treatment effectiveness

None of the private medical practitioners assessed the effectiveness of anti-TB treatment through sputum microscopy alone. Responding to the question, "How do you assess the effectiveness of your treatment?" 76% stated that it was through clinical assessment, followed by those who preferred X-ray and laboratory investigations. The difference between the cities was highly significant ($P < 0.0001$); 88% in Rawalpindi compared with 65% in Lahore said that they assessed it clinically. Ways of assessing treatment effectiveness were similar comparing graduates and postgraduates in Rawalpindi ($P = 0.210$) and in Lahore ($P = 0.726$).

Most of the private medical practitioners in Rawalpindi (48%) and Lahore (55%) assessed treatment effectiveness on a fortnightly basis, while 25% in Rawalpindi and 37% in Lahore assessed it quarterly. The majority of postgraduates in Rawalpindi (53%) assessed treatment monthly and in Lahore (60%) fortnightly, followed by 29% and 40% respectively on a quarterly basis. The difference between graduates and postgraduates for frequency of assessment was significant in Rawalpindi ($P = 0.010$) but not in Lahore ($P = 0.350$).

Record keeping

In response to the question, "Do you keep records of TB patients at your clinic?" most of the private medical practitioners (97%) did not maintain records for pulmonary TB patients; only 3% ($n = 7$) said they kept records. Practices in the 2 cities were the same ($P = 0.373$). Among the postgraduates, only 1 in Rawalpindi and 2 in Lahore had any records for the TB patients.

Patient tracing

Only 2% of private medical practitioners traced defaulters. In response to the question, "What action do you take if the pul-

monary TB patient on treatment does not come back for the next appointment?" a majority (98%) in both the cities admitted that they did not take any action. Similarly, 94% postgraduates in Rawalpindi and 100% in Lahore admitted that they did not take any actions if a patient defaulted on treatment.

In response to the question "In case of a new pulmonary TB patient, do you take any action towards his/her close family contacts?" 41% of private medical practitioners in both the cities admitted that they did not take any action. Of those who said that they do take an action, 98% in both the cities would enquire about the symptoms of pulmonary TB and 2% relied on either sputum tests or chest X-ray. Similar patterns were observed comparing graduates and postgraduates.

Awareness of national guidelines

When asked "Are you aware of the National TB Control guidelines?", 96% of private medical practitioners in Rawalpindi and 99% in Lahore admitted that they did not know about the guidelines. Among the postgraduates, only 1 in Rawalpindi was aware of these guidelines. The status of awareness regarding the guidelines was the same for graduates and postgraduates in Rawalpindi ($P = 0.664$) and Lahore ($P = 0.668$).

In response to the offer, "Would you like to attend any training on National TB Control Guidelines?" a majority (94%) of physicians in both the cities showed a willingness to participate in such activities. Similarly, among the postgraduates, 88% in Rawalpindi and 95% in Lahore desired to participate in training.

Discussion

TB remains a major public health problem in Pakistan with a high prevalence of open

cases who are the main source of person-to-person transmission. In Pakistan, the private sector makes a major contribution to providing health care for all kinds of health problems including TB.

The present study showed that the knowledge and practices of formally qualified private medical practitioners were not in line with the National TB Control Programme guidelines. A majority of respondents (79%) incorrectly stated the duration of cough that is suspicious for pulmonary TB, giving a duration of either 4 to 9 weeks or 2 weeks. There was no significance difference between graduates and postgraduates in the 2 cities, Rawalpindi and Lahore.

For diagnosing a suspected case of pulmonary TB, none of the practitioners perform sputum microscopy alone. This finding is similar to a study conducted in India, which found that treatment practices of private practitioners were inadequate and only a small proportion of private medical practitioners suggested sputum examination [12]. Contrary to the findings of Marsh [13], this study found that more than 90% of the private medical practitioners perform one or multiple laboratory tests in the process of diagnosis.

After private medical practitioners establish the diagnosis, 83% of them would start treatment themselves and only 10% would refer the patient to a TB centre. None of them take the history of any previous anti-TB treatment and most of them prefer to rely on family history and socio-economic status to help them prescribe medication. A small percentage also perform liver function tests and record the weight of the patient. However, a significant difference was noted in relation to patient referral practices in the 2 cities. Graduates in Rawalpindi refer more patients than do postgraduates, whereas in Lahore no difference was observed between graduates and postgraduates.

Overall, 97% of the practitioners admitted that they had no knowledge of the categorization system for TB patients to select a treatment regimen. Even the postgraduates in Rawalpindi (82%) and in Lahore (95%) were unaware of the categories. It is therefore unlikely that a patient will receive appropriate treatment based upon categorization of his/her illness.

None of the private medical practitioners followed National TB Control Guidelines in prescribing medicines. The majority prescribe a fixed-dose combination of 4 drugs (a famous brand in Pakistan) or 3 drugs. A significant difference was observed between the preferences of practitioners for 4- or 3-drug fixed-dose combinations in the 2 cities. However, more important is the fact that there was no concept of initial and continuation phases of treatment and the majority of practitioners prescribe fixed or separate combination of drugs until the patient is considered cured. Interestingly, rifampicin is very popular and 100% of practitioners continue with it during the entire course of treatment. The practices regarding frequency of prescribing/ dispensing medicines were similar between physicians in the 2 cities and those who were graduates or postgraduates.

A majority (85%) of respondents said that they ensure the intake of anti-TB medicine; however, none of them had a system for ensuring compliance under the supervision of a doctor or a health worker. Instead, the majority relied on personal counselling or on relatives to help with ensuring compliance. Graduates and postgraduates had similar practices in both cities. Almost all the private practitioners (98%) said they did not take any action if a patient on anti-TB medication does not return (defaults on treatment).

While the majority of practitioners prefer to continue the treatment until the patient is cured, none of them performed sputum examination alone to assess the effectiveness of anti-TB treatment. Most (76%) assessed the treatment effectiveness only clinically and the remainder depended on X-ray chest and laboratory investigations such as ESR, etc. The frequency of assessing the treatment effectiveness also varied. Most of them assess treatment on a fortnightly, quarterly or monthly basis.

In new cases of pulmonary TB, only 59% of the doctors would take action with the patients' close contacts and most of these (98%) would simply enquire about symptoms.

The facilities to investigate a suspected case of pulmonary TB were also rare at the private practitioners' clinics. Only 5 respondents had a facility to perform sputum examination. Interestingly, only 2 out of those 5 practitioners performed sputum microscopy in order to establish the diagnosis. Thus it is not only laboratory facilities that are scarce, there is also a lack of awareness among all cadres of private medical practitioners.

Only 3% of all the private medical practitioners were maintaining records for their TB patients.

Among all the respondents, 98% admitted that they had not heard of the National TB Control Programme guidelines and the other findings of the study suggest that even the 2% of practitioners who claimed to be aware of them do not follow the guidelines in practice.

It is concluded that, while a few of the private medical practitioners in 2 major cities in Pakistan are following some isolated components of the national guidelines, none of them (graduates or postgraduates in either city) are comprehensively follow-

ing the guidelines in establishing a diagnosis, treating or following-up pulmonary TB patients.

Recommendations

The findings of this study strongly suggest the following:

- Private general medical practitioners throughout Pakistan, both those with graduate and postgraduate qualifications, should be trained in the National TB Control Programme guidelines.
- A functional collaboration needs to be established between private medical practitioners and the National TB Control Programme to provide quality TB care services.
- Mass public awareness should be raised to identify the main symptoms of pulmonary TB.

- Further studies are needed to assess the baseline knowledge of newly qualified doctors/ final year students, and of practitioners holding postgraduate qualification in chest diseases, and to determine the curriculum needs of medical colleges.

Acknowledgements

This investigation received technical and financial support from the joint WHO Eastern Mediterranean Region (EMRO), Division of Communicable Diseases (DCD) and the WHO Special Programme for Research and Training in Tropical Diseases (TDR): the EMRO/DCD/TDR Small Grants Scheme for Operational Research in Tropical and Communicable Diseases.

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International cricket legend Wasim Akram appointed Pakistan's first TB Ambassador

At the annual regional meeting of National Managers of Tuberculosis (TB) Control held in Lahore, Pakistan in April 2004, Pakistan's Federal Minister of Health, His Excellency Mr Muhammad Nasir Khan announced that Mr Wasim Akram had been appointed Pakistan's first TB ambassador. The position will involve Mr Akram actively promoting patient treatment and tuberculosis awareness and also helping to reduce the stigma currently surrounding the disease.

"This is a great honour for me to represent the people of Pakistan and become its first ever TB ambassador," Mr Akram said. Mr Akram will work with the support of the recently launched "Stop TB Pakistan", the Stop TB Partnership and the World Health Organization.