

Tuberculosis among never-jailed drug abusers

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السل بين مدمني المخدرات الذين لم يُسجنوا من قبل
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خلاصة: تمثل المعالجة واكتشاف الحالات اكتشافاً فعالاً أفضل الطرق لمكافحة السل في المجتمع. وقد أدرج 319 من مدمني المخدرات الذين لم يُسجنوا من قبل، في هذه الدراسة فور قبولهم في مركز إصلاح عام 1997. وقد لوحظت فروق هامة يُعتدُّ بها إحصائياً في إيجابية الاختبارات الجلدية، بين الذكور الذين تزيد أعمارهم على 40 عاماً والذين كانوا عاطلين عن العمل وأدمنوا حقن المخدرات. ومن بين أفراد العينة كان هناك 8 حالات من السل الرئوي، وهذا يعادل 170 ضعفاً تقريباً لمعدلات الإصابة بالسل من بين مجموع السكان. ويوصي الباحثون بإجراء التحري من بين المدمنين على المخدرات بالتصوير الشعاعي المصغر بدلاً من اختبار التوبركلين الجلدي عند القبول، وذلك نظراً لتكلفة الاختبار وضيق الوقت.

ABSTRACT The best way to control tuberculosis in a community is active case-finding and treatment among high-risk groups. Upon admission to a correctional centre in 1997, 319 never-jailed drug addicts were enrolled in the present study. Statistically significant differences in skin-test positivity were found among males over 40 years old, those unemployed and injecting drug abusers. Among the sample, 8 cases of pulmonary tuberculosis were found. This is approximately 170 times the rate in the general population. Because of cost and time, we recommend the screening of drug addicts by mini-radiography instead of tuberculin skin test at admission.

La tuberculose chez des toxicomanes n'ayant jamais été encore incarcérés

RESUME Le dépistage actif et le traitement dans les groupes à haut risque constituent le meilleur moyen de lutter contre la tuberculose dans une communauté. Dès leur admission dans un centre correctionnel en 1997, 319 toxicomanes n'ayant jamais été encore incarcérés ont été inscrits dans la présente étude. Des différences significatives sur le plan statistique dans la positivité au test cutané ont été trouvées chez les hommes de plus de 40 ans, les chômeurs et les toxicomanes par voie intraveineuse. Huit cas de tuberculose pulmonaire ont été trouvés dans l'échantillon. Ceci correspond environ à 170 fois le taux dans la population générale. En raison du coût et du temps, nous recommandons le dépistage des toxicomanes par mini-radiographie au lieu du test cutané à la tuberculine lors de l'admission.

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Introduction

Tuberculosis (TB) is one of the most significant health problems in the world. One-third of the people in the world are infected with *Mycobacterium tuberculosis*. Drug addicts are one of the most high-risk groups because of lifestyle, socioeconomic factors, immunological status and prevalence of human immunodeficiency virus (HIV) infection. Although a higher prevalence of TB has been shown in many studies among drug-addicted prisoners in comparison to the general population [1-4], there are few studies about the prevalence of TB among never-jailed addicts [5]. Therefore we investigated the prevalence of TB among such a sample in southern Islamic Republic of Iran.

Methods

The study was conducted in 1997 and comprised 319 never-jailed drug addicts aged 18-50 years admitted to a correctional centre in Shiraz, southern Islamic Republic of Iran. Standard Mantoux test was performed for all individuals upon their admission to the centre. The diameter of induration at the site of inoculation was measured for each after 72 hours and the results were recorded in millimetres. Those with induration of 10 mm or more were given chest X-rays. For those with a positive radiological finding for pulmonary TB, a direct smear test for acid-fast bacilli was performed. Sputum cultures were performed for those with negative smears.

Results

Data analysis revealed that those aged 40 years and older (58.0%) had a significantly higher rate of positive skin test (> 10 mm)

Table 1 Results of tuberculin skin test by age in of drug addicts by age

Age groups (years)	Induration diameter				Total
	< 10 mm		≥ 10 mm		
	No.	%	No.	%	
29	87	87.9	12	12.1	99
30-39	67	50.8	65	49.2	132
>40	37	42.0	51	58.0	88
Total	191	59.9	128	40.1	319

$\chi^2 = 48.53$, $P < 0.001$.

than those in the younger age groups (33.3%) ($P < 0.0001$, $\chi^2 = 48.53$) (Table 1). There was also a significant difference between male subjects (41.4%) and female subjects (Fisher exact test $P < 0.01$).

There were significantly more unemployed and unskilled labourers (60.1%) than white-collar workers (30.1%) ($P < 0.0001$, $\chi^2 = 82.8$), and injecting drug abusers (52.0%) than drug abusers who inhale substances (28.0%) ($P < 0.0001$, $\chi^2 = 19.04$).

Of the 319 heroin and opium drug addicts, 128 had positive tuberculin skin test, i.e. ≥ 10 mm induration, 8 of whom also had a positive chest X-ray supporting diagnosis of pulmonary TB. Of these 8, 4 had both positive smear and sputum culture for acid-fast bacilli and 4 had negative sputum culture.

Discussion

Although it has been shown that the prevalence of TB among drug addicts, especially those in jail, is higher than among the general population [1-3], there are few studies among addicts who have never been admitted to correctional centres. No similar study has been performed in the Islamic Republic of Iran.

In the present study, subjects were selected upon admission to a correctional centre. Only recent admissions were included in the study in order to eliminate the effects of overcrowding, poor health conditions, limited ventilation and malnutrition, which may occur within such centres.

Among our subjects, a prevalence rate of 2500 pulmonary TB cases per 100 000 was obtained. This is about 170 times the rate among the general population of the area among corresponding age groups, which is approximately 15 per 100 000 [1].

Since TB is a seriously contagious disease, it is very important to apply proper case-finding and treatment programmes to control the disease in the community. It is known that addiction is a major risk factor that predisposes drug users to infection with *M. tuberculosis* [2-4].

Drug addiction significantly lowers immunity by decreasing natural killer cell activities and decreasing gamma interferon production [9]. The addict's diet and life-

style have indirect effects on the immune system and lower human defence mechanisms thereby increasing susceptibility to infection [10]. Furthermore, interleukin production and B-cell and T-cell proliferation declines [9]. Two other indirect mechanisms have also been proposed. The first mechanism might be hypothalamus-hypophysis adrenal activation and increased adrenal corticosteroid production. The second might be the activation of sympathetic nervous system catecholamine release and the suppression of natural killer cells [10].

Given the findings of the present study, it is proposed that drug addicts be screened for pulmonary TB with mini-radiography instead of standard tuberculin skin test at the time of enlistment. Because of various disciplinary actions in these centres, there is a high turnover rate and many cases are lost before the 72 hours needed to obtain results of tuberculin skin tests.

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