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Emerging Region: FEMTOS
Tuberculosis Control in the Eurasia-Mediterranean Region (FEMTOS Countries)

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INTRODUCTION

The Eurasia-Mediterranean (EM) region is composed of about 20 countries with a population of more than 460 million. Even though they are situated in 3 different continents, this population is similar in many aspects; all are middle-income countries and have similar climatic and cultural environments. With this in mind and considering similar healthcare problems, we aimed to evaluate the prevalence of tuberculosis (TB) in this region.

TB remains to be a major public health problem both in developing countries and in many industrialized countries. It is estimated that one-third of the world's population is infected with mycobacterium tuberculosis (1). There are almost 8 to 10 million new TB cases and 2 million TB-related deaths annually. Moreover, multi-drug resistant tuberculosis (MDR-TB) is increasing at an alarming rate in some parts of the world. Besides poverty and co-infection with HIV, this situation is also related to diagnosis, treatment and management difficulties.

There are two types of difficulties: Those related to specific features of this infectious disease and those that are country-related.

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DIAGNOSIS AND TREATMENT PROBLEMS RELATED TO TB

Diagnostic difficulties

Clinical and radiological signs and symptoms are not specific for TB and are only presumptive. The tuberculin skin test depends on various factors such as previous BCG vaccination and host immune responses. Thus, TB diagnosis is only proven when bacilli are present in biological samples. Also, presence of necrotizing granulomatous lesions in the pathologic specimens can prove the disease. Smear examination is a rapid but non-sensitive method. Culture is a more sensitive but costly method, leading to delayed diagnosis and treatment. It also increases the risk of transmission and infection for contacts. Therefore, it is necessary to develop new methods for rapid diagnosis and treatment. Genomic techniques are the most promising method but they are also expensive.

Treatment difficulties

Concerning treatment, the present chemotherapy is highly efficient with a cure rate exceeding 90% when treatment is complete, but this therapy is laborious, uses 4 drugs during 6 to 8 months which leads to non-compliance, failure of treatment and drug resistance. This highlights the need for

developing novel TB drugs to shorten the length of treatment and combat drug-resistant strains of mycobacteria.

COUNTRY SPECIFIC PROBLEMS

Many constraints hinder diagnosis, treatment and, TB control. According to the latest WHO report, these constraints are related to different factors: (1)

- Poor and inadequate commitment
- Inadequate management capacity
- Shortage of adequately trained staff : physicians, nurses and laboratory professionals
- Inadequate infrastructures
- Poor supervision of TB management and laboratory quality assurance
- Insufficient funds

All factors have repercussions on diagnosis and treatment efficacy.

To assess TB diagnosis and treatment situations in EM countries, we sought some TB control parameters such as:

- TB incidence rate, case detection rate and smear positive pulmonary TB rate and
- success treatment rate and MDR-TB rate.

1. TB incidence:

Concerning TB incidence, most EM countries have an intermediate situation with an incidence rate between 20 per 10^5 and 100 per 10^5 inhabitants (Table1; Figure 1).

2. Case detection rate:

In several countries, there are discrepancies between reported cases and incidence; low notification rate suggests underreporting or under diagnosis of cases. (Table 2; Fig. 2).

3. Smear positive pulmonary TB rate:

Detection rate of smear positive cases is a more important parameter and one of the main WHO targets was to detect 70% of all smear positive cases by 2005. Several EM countries could not reach this target by 2005 (Fig 3, Table 3)

Another important diagnostic parameter is the proportion of smear positive cases among all cases. This proportion should be 45% or more. If lower, it suggests that most patients were diagnosed on the basis of clinical or radiological evidence and that bacteriological diagnosis failed. This fact raises the issue for need of lab networking. That is the case for 70% of the countries in EM areas (Fig. 4, Table 4).

4. Treatment outcome:

Treatment outcome situation in EM area has better figures and in 2004 half of the countries hit the WHO's target of 85% treatment success rate (Fig 5, Table 5). This may be due to the appropriate follow-up of the TB cases, either by the health system or by doctors.

One important fact in EM areas is that TB-HIV co-infection is not a major problem since HIV rate in all forms of TB is 1% or less in all countries except Kazakistan where it is 3%. Furthermore, DOTS is implemented in almost all countries of the region. It is known that DOTS ensures higher treatment completion rate and prevents the emergence of drug-resistant TB and enhances TB control.

Table 1. Repartition of EM countries according to incidence rate of tuberculosis (2004) *(*Per 10^5 pop)*

	< 20	20 - 100	> 100
Countries number	2	13	5
%	10	65	25

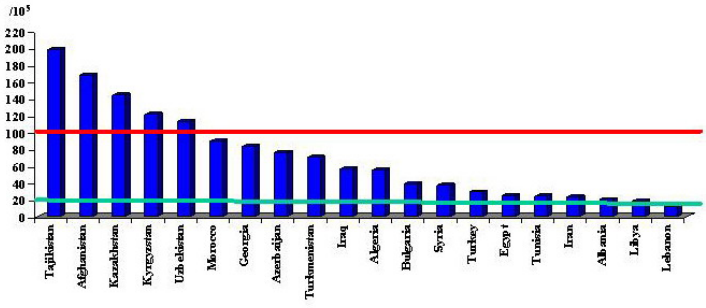

Figure 1. Incidence rate of all types of tuberculosis, in 2005 (WHO Global Report, 2007)

Table 2. Detection rate for TB cases

	< 70%	≥ 70 %
Countries number	9	11
%	45	55

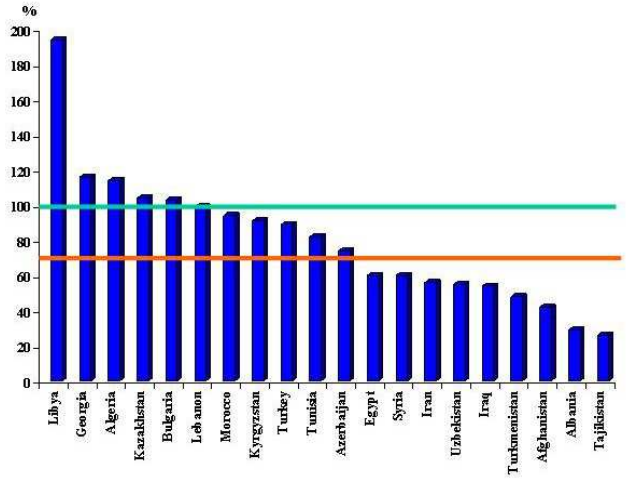

Figure 2. Detection rate for TB cases, in 2005

* The Turkey's data were provided by Professor Zeki Kılıçaslan, General Secretary of the Turkish Anti-Tuberculosis Association

Table 3. Detection rate of smear (+) cases

	< 70%	≥ 70 %
Countries	11	9
%	55	45

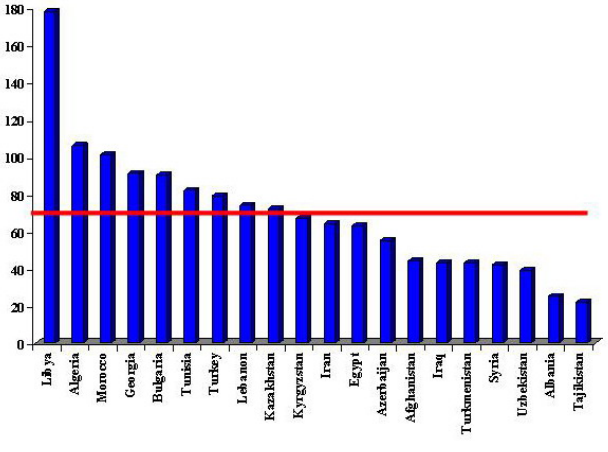

Figure 3. Detection rate of smear (+) cases, 2005

* The Turkey's data were provided by Professor Zeki Kılıçaslan, General Secretary of the Turkish Anti-Tuberculosis Association

Table 4. Ratio of smear (+) TB/all cases

	< 45%	≥ 45 %
Countries	16	4
%	80	20

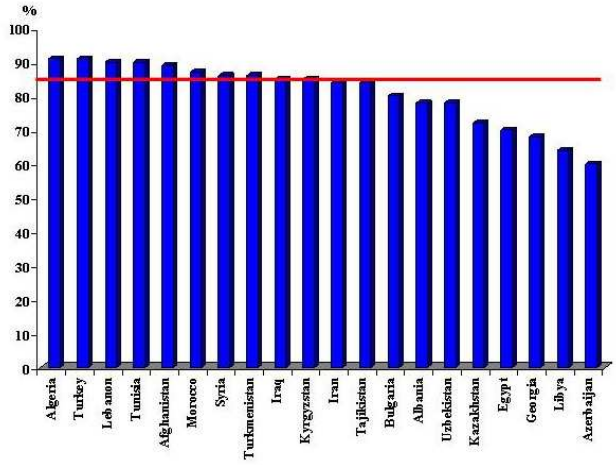

Figure 4. Ratio of smear (+) TB/all cases, 2005

Table 5. Treatment success in new smear (+) cases, 2004

	< 85%	≥ 85 %
Countries number	10	10
%	50	50

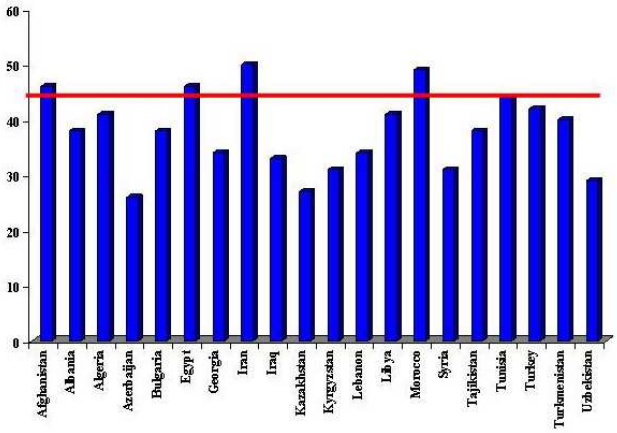

Figure 5. Treatment success in new smear (+) cases, 2004.

5. MDR TB

The rise of drug resistant TB in several settings is compromising the weak national TB programs, especially in countries or regions where MDR rate is greater than 3%. None of the EM countries are concerned by this high rate of MDR-TB, although some data show that there are areas of major concern including Afghanistan, Azerbaijan and Iran.

In summary, most EM countries have approximately similar TB rates with relatively efficient national TB programmes, acceptable TB management and treatment outcomes. But we must improve case detection, diagnosis, lab services, quality control, and reporting.

Therefore, it is important to share experiences by active collaboration to benefit regional programs.

REFERENCES

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