



Epidemiological study on tuberculosis patients in Ahvaz East Center during 2009-2013

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Abstract: To study TB incidence trend and its epidemiological aspects in recent years in Ahvaz East Center. As national and international Emphasis for detecting Smear positive pulmonary tuberculosis and eliminate the disease rate and global target internationally to eliminate TB by 2050 based on 1990 rate. In this cross-sectional descriptive-analytic study the records of all TB patients referred to Health centers and preventive diseases units in East of Ahvaz in 5 years (2009-2013) were evaluated. Data were derived from patients' records and entered to check lists and then analyzed using SPSS 17 software. During the studied years a total of 990 cases were reported by all centers and units under cover of Ahvaz Main East Health Center. Among them 232 cases (23.43%) was external pulmonary TB. Male subjects had a higher incidence of 62% compared to females. The age group 25 - 45 year was the most affected group. Smear positive rate varied from 58% to 76%. Cure rate in 5 studied years has not too differentiation, was varied 81% to 87%. The results show most affected TB cases in 5 studied years were pulmonary (73-84.5%), this obey the national pattern of the disease. Smear positive rate that varied from 58% to 76% was more than the national rate (53%). Morbidity in centers and units under cover of Ahvaz Main East Health Center was younger age pattern in compare to whole country rate. Incidence rate of TB was higher than national rate.

Key words: Tuberculosis; pulmonary Tuberculosis; Epidemiology; TB Incidence.

Introduction

Tuberculosis (TB) is a disease with specific epidemiology and is one of the oldest diseases known to man. Tuberculosis is a major cause of lower respiratory tract infection in many developing countries. TB still remained among the Top 10 causes of ill health and death worldwide [1]. It expected to remain in this place till 2020 and causes ill-health among 9 million people annually and about 1.5 to 2 million deaths each year [2]. From Annual 9 million people worldwide which are infected with the disease, 600 thousand cases are occurred in the eastern Mediterranean region includes Iran. Incidence trend has been increasing in recent years in Iran [3]. In spite of the great achievements of human society it seems TB disease still remains as a global public health problem [2,4]. More than 90% of cases and death due to tuberculosis is in developing countries, 75% of the cases occurred in their economically most productive age group (15 to 54 years) [5]. TB is counted as biggest single - agent cause of death among infectious diseases. National and international Emphasis for detecting Smear positive pulmonary tuberculosis and reduce the annual incident of new cases to less than one per million populations. As the estimated rate now is 1400 cases per million per year [4] and global target internationally based on sixth goal of the UN Millennium Development Goals to reduce the TB incidence and mortality by 50 percent till 2015 based on 1990 rate [4] and eliminate disease by 2050[6,7]. Fortunately, cumulative total of 56

million people was successfully treated for TB between 1995 and 2012, saving approximately 22 million lives [8]. Studies show that pulmonary tuberculosis incidence rate from 9.59 to 13.6 per 100000 [9]. Prevalence rate in South East of Iran reported 71 per 100000 [10] but, for the world the estimated annual incidence rate was 120 / 100000 dropping to about rate was 110/ 100000 in year 2005 [11]. This incidence as WHO Stop TB strategy should bring down to 1 per million populations by 2050. [12]. Studies show smear positive rate 96.8% [13] and 61% [14]. Other studies show 51.3% smear positive tuberculosis in year 2010 which this percentage dropped to 42.5% in year 2011 [15]. Client Treatment mainly single man, unemployed and living below the poverty line [16]. The more affected provinces in Iran are Khorasan, Mazandaran, Gilan, Eastern and Western Azerbaijan, Ardabil, Kurdistan, Khuzestan and South Coastal Provinces, while Central Provinces are less affected. Most incidence and prevalence of TB occurred in Sistan Baluchistan and Golestan [17]. A comprehensive study in Iran [18] showed that 48.1% of TB patients were male and 51.9% were female. Extra pulmonary tuberculosis was diagnosed in 30% of the cases. Smear positive 66%. The success rate of treatment in this study was reported to be 79%. Previous studies found that 49.5% of infected people were male [13]. Others show that majority of patients (60.5%) were female [19], and for male and female 46% and 54% respectively [14]. Most

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affected age range is varied nationally and internationally. While some studies [9] show that the most infected patients (35%) were 65 years and over, but in another province [14] greater part of patients reported 21- 30 years. The most affected group in Nigeria [20] and China [21] were age groups between 16 and 35 and between 20 and 40 years respectively. Studies have shown that the greater part of patients were in age group of 29-49 years old [22] and another reported that in an age range from 1 to 83 most of them (32%) were in group 15-30 years [13]. Studies in some provinces in Iran show that majority of cases are patients with pulmonary tuberculosis as reported in other studies [14, 23]. This obeys the national pattern of tuberculosis that most common type is pulmonary tuberculosis. Significant race differences are reported by some researchers [22]. Also studies in north of Iran showed that the maximum number of tuberculosis patients diagnosed was in the second month of spring (May), followed by June and July, the minimum number of cases was in February [24]. A study in Razi Hospital in Ahvaz showed that smoking, HIV infection, injecting drug addiction, diabetes mellitus and imprisonment were the main risk factors for tuberculosis acquisition in this region [25]. There were statistically significant differences in term of presence of HIV /AIDS co-infection [22], and an increase in the number and percentage of tuberculosis patients that consented to HIV [15]. Other studies show an increasing tuberculosis rate in HIV positive patients in Ahvaz [26]. The aim of this study was to investigate the epidemiological status and the factors related to TB morbidity in Ahvaz, the capital of Khuzestan Province, Iran, during a 5-year period. Such studies could be effective to identify and resolve the problems and improve the present situation.

Materials and Methods

A descriptive-analytic cross sectional study aimed to investigate the epidemiological status and the main characteristics of TB in Ahvaz, the capital of Khuzestan province, Iran, during a five-year period. The study was carried out using all records of TB patients referred to Health centers and preventive diseases units reported to Ahvaz Main East Health Center in 5 years (2009-2013). Ahvaz is situated in the South West of Iran. The estimated population is 3.5 million. Ahvaz is divided to two districts West and East of Karoon River. Each part is responsible for Health services of about half of city residents. Medical records of Patients in East District retrospectively reviewed. Data entered to check lists and then analyzed using SPSS 17 software.

Results

There were 990 total TB patients referred to all health care units and receiving treatment in year

2009-2013. Male subjects had a higher rate of 62% compared to 38% in Females. The ages ranged from 0-4 to >65 years. The age group 25 - 45 year was the most affected group. Extra-pulmonary tuberculosis was diagnosed in 23.43% of the cases (n = 232) while pulmonary tuberculosis rate was 76.56% (n= 758). There is a considerable increase in Extra-pulmonary tuberculosis rate in last two years of 5 studied years. Lymphatic TB was the most common site for extra-pulmonary TB (41.37%), followed by pleural TB (37.5%), bone TB (8.6%) and urinary tract 5.2%. Remaining 8% affected other organs. Smear positive rate in 5 studied years was varied from 58% to 76%, and there was an increase in the incidence rate of smear-positive in last two years. Cure rate in 5 studied years was varied 81% to 87%, and has not shown too differentiation. The incidence rate of TB in studied years was varied from 28 to 32 per 100000 individuals. Lowest incidence rate was observed in year 2010 (about 22 per 100000) individuals and highest in 2012 with 32 / 100000. The rates in other three years were 22.5, 28 and 29 /100000 respectively. The results show that the incidence rate of pulmonary TB patients who were diagnosed by positive sputum cultures was varied from 7 to 18 / 100000.

Discussion

The study shows that the most affected TB cases in 5 studied years were pulmonary (73-84.5%), which is more than national rate [18]. Smear positive rate that is varied from 58% to 76% also is more than the national rate (53%). TB morbidity in centers and units under cover of Ahvaz Main East Health Center show a younger age pattern in compare to other studies [9, 27]. Male subjects had a higher morbidity rate of 62% compared to 38% in Females, which not obey the national sex pattern. The overall cure rate of 5 studied years (83.56%) in our patients was slightly lower than 85% recommended by the world health organization target [28, 29]. This means that more effort in needed to further improve of this cure rate by efficacious measures for follow up of patients. Incidence rate of TB in Ahvaz East district in 5 studied years show not considerable differentiation with studies that conducted in North East of Iran with a sum of 21 to 38 per 100000 [30], but show a higher rate comparing to studies conducted in North and Centre of Iran with a rate of 6.5 to 19.5 and 10 to 13.5 per 100000 respectively [9, 31]. Iran is located in a critical region in the TB world [30], and on the other hand Khuzestan province is Iraq neighborhood that for years has been involved war. This may affect our detection and control of TB and may too difficult to achieve WHO Stop TB strategy that should bring down to 10 per 100000 populations by 2050 [12]. However, incidence of TB in Iran shows a descending trend

during past decades from 142/100000 in 1964 to 14.4 per 100000 in 2012 [32]. The limitations of this study are Socio - demographical data such as life style and economic status that were not available. Also in addition, smoking, HIV infection, injecting drug addiction, diabetes mellitus and imprisonment as the main risk factors for tuberculosis acquisition [15, 22-26,33-35] in all available medical records of the patients for the entire five-year period were missing. Therefore, we recommend that these and other possible factors may suggest by our research colleagues should be considered as items interred in TB patient's medical records. The results show that the pulmonary Tuberculosis and Its Smear positive rates are more than national rate. Study show a younger age pattern comparing to other studies. The overall cure rate in our patients was slightly lower than the rate recommended as the World Health Organization target. Incidence rate of TB in Ahwaz East district in 5 studied years show not considerable differentiation with studies that conducted in North East of Iran, but show a higher rate comparing to studies conducted in North and Centre of Iran. The overall results of this study show that tuberculosis still is a serious problem in East District of Ahwaz.

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