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Research Article

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The Epidemiological findings of a 5-Year study on Tuberculosis in the Khuzestan Province during 2008 to 2012

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ABSTRACT

Epidemic creation of aids disease and its subsequent, drug resistant tuberculosis have turned back today's world with all the great advances in medicine in term of tuberculosis control more than a century. The existent problems regarding tuberculosis control program is not same in all parts of the country therefore, epidemiologic studies fulfillment of tuberculosis are necessary in different parts of the country for appropriate interventions. The present study with epidemic study aim of tuberculosis has conducted during 2008-2012 in Khuzestan province. This sectional descriptive using related information to recorded patients from April 2008 to the end of March 2012 is that was done by Infectious and Tropical Diseases Research Center of Jundishapur University. During this period of 5 years, 2816 patients were recorded who from this number, 1532 persons (54/5%) male. 1284 persons (45/5%) were female. Among total recorded cases 2316 persons (82/2%) Iranian and 48 persons (1/7%) were non Iranian who the most number were non Iranian as to Afghans. Among total recorded cases 2316 persons (82/2%) urban, and 500 persons (8/7%) were rural and nomads. Among total recorded cases 2100 persons (74/5%) Pulmonary and 716 persons (25/5%) were extrapulmonary that the most organizations of involvement were in extrapulmonary, lymph nodes (33/8%) and then pleural tuberculosis (20/8%) and bone tuberculosis (9/8%), and urinary tract tuberculosis (4/9%). And among total cases of pulmonary tuberculosis (2100 persons): 1519 persons (72/5%) smear-positive, 371 (5/17%) smear-negative and 100 (7/4%) indeterminate smear, and 110 (2/5%) were recurrence. The obtained results of this study shows which although control and care of tuberculosis from 2008 to 2010 has had the descending process and with performed interventions since 2008 indicators found ascending process again, but still there are many interventions. As mentioned, in 20011 that there were the most surveillance cases, the most outbreak cases have also reported and in 2010 that there were the lowest surveillance cases, the lowest outbreak have also reported so, it seems with diseases reinforcement can considerably help to the detection diseases cases and control of disease, and also serious interventions be considered such as preventive and surveillance issues specially for detection and treatment of patients and weakening of chain of disease transmission in vulnerable groups.

INTRODUCTION

Tuberculosis is one of the most common infections (1) and probably one of the oldest diseases which has effected on human race (2). This disease has global spread and is more common in developing countries (3). The tuberculosis is a disease that shows itself as chronic cough with sputum, fever, night sweat and weight loss. The disease is highly contagious but only 5% to 10% of normal individuals suffer the active disease (4). The disease creates by Mycobacterium collection which includes Mycobacterium tuberculosis, Mycobacterium bovis and Mycobacterium

afrykanum (5). According to latest statistics, about one-third of the world's population is infected with bacillus tuberculosis (6). Annually 8 million new cases report in the world (7). This disease is the second leading cause of mortality of infectious disease after aids in adults and annually over 2 million persons die by in effect of this disease (8). For this reason, in 1993 the World Health Organization (WHO) considered tuberculosis as a health global emergency (9). Around the world status and particularly Asia are critical in terms of getting tuberculosis(1, 6). Meantime, Iran is also involvement with the problems caused by this disease and considering that precise and consistent data are not available from situation of tuberculosis in Iran. Therefore, epidemiologic studies on tuberculosis in different parts of Iran become a necessity. To efficient treatment of any diseases, the information from existent situation is a basic action and specifies the strengths and weaknesses of the program and guide of health workers is in focusing on weaknesses and allotment of credits in these cases. The aim of this research project is the epidemiological study of 5-year of tuberculosis from 2008 to 2012 to achieve the above objectives.

MATERIALS AND METHODS

In this analytic descriptive study, all patients were examined with pulmonary and extrapulmonary tuberculosis during a period of 5 years (from April 2008 to March 2012). Sampling approach of using existent recorded information was in the Infectious Disease Research Center of Khuzestan province and for this purpose all the diagnosed and registered records of people were collected in TB register program. This information was divided based on age, sex, nationality, place of residence, type of tuberculosis and imprisonment history. For individuals with pulmonary tuberculosis must at least have two sputum tests from 3 samples of its sputum be positive or a positive sputum sample in addition, suspicious chest X-ray or clinical symptoms to be held into account as the patient. For people with ppd extrapulmonary tuberculosis, suspicious test and suspicious CT-Scan from bone or lung was selected as criteria of entry to study. From descriptive statistics such as mean and standard deviation was used for quantitative variables and from proportion for qualitative variables. In addition, the chi-square test was used for relationship between the qualitative variables and for relationship between the quantitative variables for positive and negative of TB were used the T tests which all of these was done by SPSS software.

RESULTS

During the 5 year period had been registered 2816patients who from these number 1532 (54.5%) male, 1284 (45.5%) were female. Also, the age average in all cases, 35 years and in positive smear patients was 34 years (Age minimum 8 years and age maximum were 99 years.) And in term of age range, the most common suffering age had been recorded 25-34years (26%) and then 15-24 years (20%).

Among total recorded cases, 2768 people (98.3%) were Iranian and 48 people (1.17%), non-Iranian who the greatest number of non-Iranian were related to Afghans.

Among total recorded cases, 2316 people (82.2%), urban and 500 (8.7%) were rural and nomads. 2,600 people (3.92%), non-prisoners and 216 people (7.7%) were prisoners who all the prisoners were men. From the total number of 2706 people, 2816 people (96%), new and 110 (4%) were recurrence.

Among total recorded cases, 2100 people (5.74%), pulmonary and 716 patients (5.25%) were extrapulmonary that the most involvement organ was in extrapulmonary, lymph nodes (8.33%) and then, pleural tuberculosis (8.20%) and bone tuberculosis (8.9%), and tuberculosis of the urinary tract (4.9%).

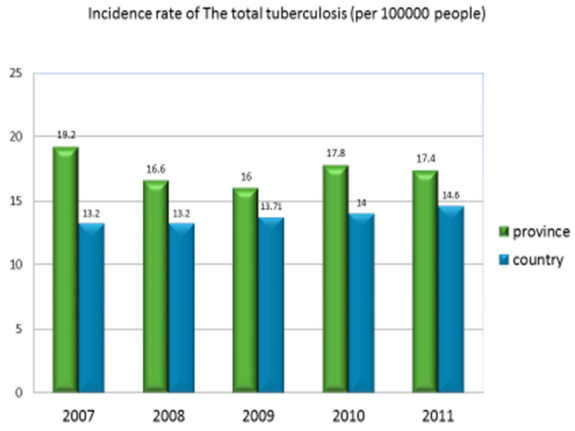

Fig. 1. Incidence of the total tuberculosis (per 100000 people)

And among total cases of pulmonary tuberculosis (2100 people): 1519 people (74.5%), Smear-positive, 371 people (5.17%) smear-negative and 100people (7.4%) indeterminate smear, and 110 people (5.2%) were recurrence.

In term of the surveillance in the province level, the highest percent is related to 2008 with 81.8% and the less is related to2010 with 38.66%, and in2012 is gottento89.71%.

Fig. 2. Percent of new cases versus relapse ones among all diagnosed patients

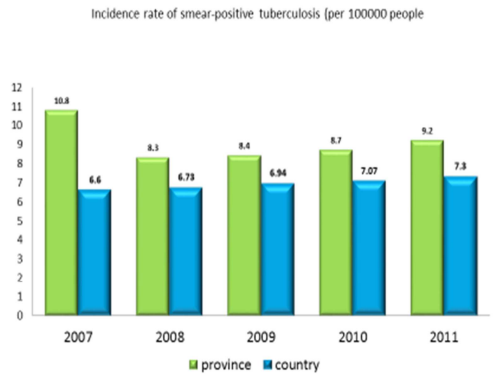

Fig. 3. Incidence rate of smear-positive tuberculosis (per 100000 people)

The highest outbreak of total tuberculosis cases was related to 2008 with 19.2 rate in 100 thousand people and the less rate was related to 2010 with 16% of thousand people, and in 2012 is gotten to 17.4 in 100thousand people.

The outbreak rate of smear-positive in 2008 with 10.8% of thousand people were the most rate and in 2010 with 8.3% of thousand people were the less rate, and in 2012 is gotten to 9.2% of thousand people.

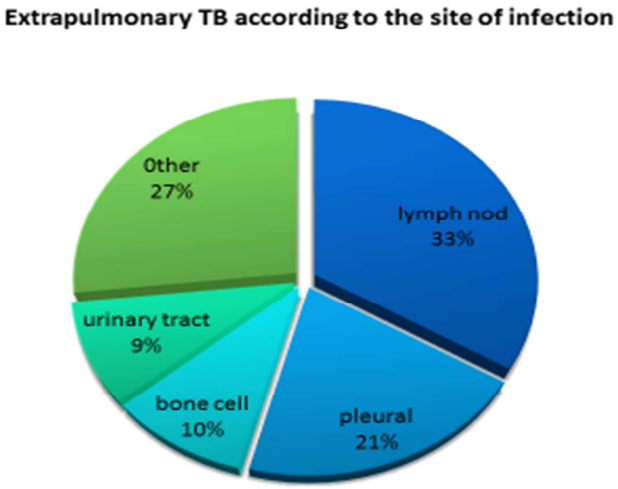

Fig. 4. The frequency distribution of Extrapulmonary tuberculosis versus site of infection

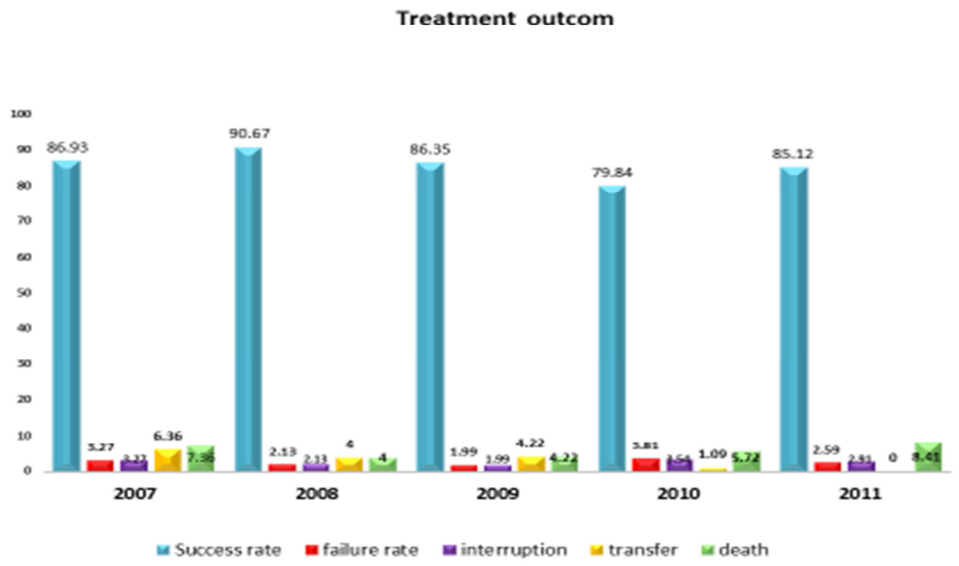

Fig. 5. The frequency distribution of treatment outcomes of the patients of tuberculosis during the studied period

And treatment outcome in smear-positive cases 1208 patients (5.79%), improved and 134 people (8.8%) treatment completion, 92 people (6%) death that the most common cause of death of 64 cases (6.96%) has been due to other causes. Also, 38 (5.2%) treatment failure, 43 (8.2%) the absence of treatment, and 4 (0.2%) had transferred. It should be noted that the minimum percentage of failure and absence of treatment and transferred has been related to 2012 and maximum percentage of death is related to 2012.

Treatment success in 2009 with 90.67%, maximum and in 2010 with 79.84% minimum, and in 2012 is gotten to 85.12. The fulfillment of cultivation and antibiogram for eligible patients, the less was related to 2008 with 6 persons and the most was related to 2012 with 221 persons. In this period, 51 cases have been discovered drug-resistant patient who the lowest was in 2010 with 3 persons (8.5%) and the highest with 21 cases (41%) was in 2012; from 51 patients, 45 (89%) persons received treatment end and 6 patients (11%) are treating. From total number of tuberculosis patients including new and retreatment, 83 persons (2.8%) were positive HIV and 2607 persons (89.4%) indeterminate HIV, and 226 (7.8%) negative HIV and from 83 persons, 17 (11.8%) their HIV had been specified after the tuberculosis diagnosis.

DISCUSSION AND CONCLUSION

Tuberculosis is one of the oldest diseases which it has been acting as one of the most important cause of mortality in human societies to many years. The outbreak rate of tuberculosis in Iran has been a decreasing process over the past few years so that outbreak rate of disease during the years of 2002 to 2009 has been decreased from 18.4 to 13.4 in 100 thousand people (10).

Delay in diagnosis of patients suffering the smear-positive pulmonary tuberculosis is as one of the most important development factors in community and increase of disease risk severity that according to the results obtained in this study, the most people have had smear-positive pulmonary tuberculosis which is consistent with other research in the country. For example, in a study that is done by Dr. Sufi et al. for the epidemiology of tuberculosis in the city of Arak during 1999-2008. From 789 patients, 68.1% suffered the pulmonary tuberculosis and 31.9% suffered the extrapulmonary tuberculosis (11). In the study which was conducted by Dr. Arshaf Tavanaei Sani et al. in 2001 to 2003, from 2840 patients (53.5%) smear-positive pulmonary tuberculosis, 437 (15.4%) smear-negative pulmonary tuberculosis, 885 (31.1%) have been extrapulmonary tuberculosis (12). Also, according to this study which was conducted in Khuzestan province, the most involvement organ in extrapulmonary tuberculosis, lymph nodes (33.8%) and then pleural tuberculosis (8.20%) and bone tuberculosis (8.9%), and urinary tract tuberculosis was

(4.9%). In other carried out studies in country observe the same proportions, for example, in a study that have done Dr. Metanat et al. extrapulmonary tuberculosis epidemiology in the city of Zahedan were examined in 2000 to 2003. In this study, extrapulmonary TB was including 2.23% of total TB cases (1798 cases) during 5 years. A variety of extrapulmonary tuberculosis had been diagnosed that the TB lymphadenitis (5.34%) most common, followed by pleural tuberculosis (2.12%), and bone tuberculosis (12%) were placed respectively in second and third rank in terms of prevalence (13). The results obtained of this study show that although, TB control and care from 2008 to 2010 had a decreasing process and with performed interventions from 2011 indicators found increasing process again, but there are still many interventions. As mentioned, in 2008 that had the most cases surveillance, the most cases have also been reported and in 2010 that had the less cases surveillance, reported the lowest incidence have also been reported, so it seems to reinforcement the diseases can considerably help to case detection and control of disease, also serious interventions such as preventive and surveillance issues specially in vulnerable groups be considered for detection and patients treatment and chain debilitation of disease transmission. It is also important HIV test should also be done for young patients with observance of necessary conditions. Drug resistant TB is common in the countries of Central Asia and Iraq and because of their neighborhood to Iran and political connections with our country can be effective in the spread of tuberculosis. That's why the World Health Organization presented and began to be implemented its new strategy for eradication of TB in 2006 that the most central method of this program is DOTs method utilization. Of course, the above method was introduced in 1995 by the World Health Organization and from that year until now a million people have treated by this method. Correct identification of epidemiological differences and cities sensitive areas, surveillance in populations at risk specially, in the age groups with higher risk because of the changes in demographic structure, Review the implementation of the processes associated with TB surveillance in health and therapeutic units, sputum microbiology laboratories standardization, and optimal use of it, implementation of proper relationship with private health care units, reinforcement of infrastructures, population education, the move towards involvement personnel enabling in disease control, tracking of people at risk of contact with the patient is unavoidable necessity and to achieve the millennium development goals namely identification of at least 70% of expected smear-positive pulmonary TB cases, reduction of prevalence and death resulting from tuberculosis to 50 percent rate until 2025 compared with 1990, and TB elimination until 2025, and reduction of disease outbreak to less than one person in n a million population needs to effort and effective and more actions.

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