

Epidemiological Study of tuberculosis in Maysan governorate during the period (2001-2008)year

Nidhal. A. Hashim

Technical Institute - Amara

Abstract: This study was conducted to determine the total number of Tuberculosis(TB) cases in Maysan governorate during 8 year from 2001 to 2008 and Investigate the rate of male patient compared with female patient .This study was also achieved to know the age group who has more accident and area distribution of TB case.

The results of this study show:-

- The total number of TB cases in Maysan governorate was about (2687)case during the years of 2001 to 2008 ,the more percent of the cases was(13.9%) in 2003y. whereas the percent was(13.8%) in 2002 y.and lowest percent was(9.8%) in 2008y.

- Increase the rate of male infected of TB(1667,62%)when its compared with female rate(1010,38%).

- Increase the accidents of TB in young age, age group (15-24)y.with percent(25.8%) follow by age group (25-35)y.with percent (24.9%)compared with other age groups ,lowest rate was in child age .

- increase rate of TB case in center of governorate (Amara)(1677,62%) compared with rural areas in maysan governorate (1010, 38%).

Introduction:Tuberculosis (TB) is an infectious disease caused by *Mycobacterium* (M.tuberculosis) . There are two stages of TB:TB infection and TB disease .Transmission occurs only with the TB disease,TB infection alone and this is not contagious . TB disease occurs when your immune system can no longer control the infection . The growing of bacteria can rapidly affect by any part of body but can normally affect the lung or the lymph glands . The bacteria cause TB can survive in the body for several years without displaying any signs or symptoms to the individual. A person who has 'Active TB'whenever the bacteria changes its state from dormant to active (1).

TB is spread from person to person by bacteria contained in tiny particles in the air ,These particles may be released when person has TB disease in an infectious state coughs, sneezes ,sings or talks.(5),only persons with TB disease of lungs or larynx are contagious, each person with active TB infects on average 10 to 15 people every year (3).

TB once considered a disease of the best ,but since 1988 there has been a marked in increasement the number of reported cases , TB was declared a global emergency by the world health organization in 1993 ,moreover TB is now responsible for more deaths than almost any other infectious

disease . Nearly all the countries in the world are affected by the global resurgence of TB, which is caused primarily by increasing poverty, HIV, poor access to health services and from workers from overseas countries where the disease is more common (2).

The WHO recorded in 2007, the estimated global incidence was 139 cases per 100 000 population (a total of 9.3 million cases)(3) with a mortality rate of 27 deaths per 100 000 population (a total of 1.8 million deaths attributed to tuberculosis)(4).

There are more than 2 billion people ,equal to one- third of the world's population ,are infected with TB bacilli, the microbes that cause TB .1 in 10 people infected with TB bacilli will become sick with active TB in their life time .TB is a disease of poverty mostly affecting with young adults in their most productive years .The vast majority of TB deaths are in developing world, and more than half of all deaths occur in Asia.(3,6,7).

In UK reported 7000 new cases of TB each year, of which around 40% is concentrated in the London areas, that is approximately two out of five cases each year around 350 people die from TB in England (1).

There were 9.4 million of new TB cases in 2008 (3.6 million of whom are women) including 1.4 million cases among people living with HIV, 1.8 million people died from TB in 2008 including 500000 people with HIV –equal to 4500 death day(3).globally, TB kill more women than any other single infectious disease (6, ,8).

Because increasing numbers of TB cases in Maysan governorate, this study was made to know the total numbers of TB cases during 8 years from (2001-2008) in Maysan governorate as an example for the south area of Iraq, determine the rate of TB type (active, non active, relapse, extra TB), determine the sex ratio (male: female) among registered TB cases and determine the rate of TB cases in an urban and rural area in Maysan governorate.

Material and Methods:

Data collection :-

The sample of this study was (2687) cases, diagnosed TB cases who commenced anti-TB therapy through the DOTS programme during (2001-2008) year. All TB were registered at the chest clinics in Maysan governorate, collection of the information about TB patients:-

-TB type (Active, non active, relapse, Extra TB which include TB meningitis, gastrointestinal, skeleton, genitourinary, lymph nodes, skin, pleural cavity, military TB, pericardium and brain).

- Age include the age groups (0-1y., 1-4y., 5-14y., 15-24y., 25-35y., 35-44y., 45-54y.,

55-64y., 65-more y.)

-Sex (male: female).

-Area distribution (an urban and rural area).

Data analysis :-

Mean percentage scores calculated as follows: $(\text{score}) \times 100 / (\text{maximum possible score})$. The statistical methods used included descriptive measures (frequency, percentage, arithmetic mean).

Rseults:-

Table(1) shows type and number of TB cases during (8)y. from 2001 to 2008 y.and percentage ,Showing the highest percentage of active TB was in 2002 y. with number (164)case ,percent(16%) while lowest percentage during the year of 2008 with number(72)case, percent(7%),for replase was highest percentage during the year of 2002and 2006y. with number (17) case ,percent(16.8%)for each, while lowest percentage during the year of 2008 with(7)case ,percent(7%). For the non active TB was highest percentage during the year of 2002 with (125)case ,percent(14.6%) and lowest percentage during the year of 2007 with (93),percent(10.9%) while highest percentage for extra TB was duringthe year of 2005with (106)case, percent (15%) and the lowest percentage during the year of 2002 with (65)case, percent(9.2%). In this table shows the highest percentage of TB cases was during the year of 2003with number (374)case ,percent(13,9%) while lowest percentage during the year of 2008with number(262)case ,percent(9.8%),and percent of active pul. TB was(38.3%) during 8 years while the non active pul TB.(31.8%)and the Extra TB was (26.2%)more than expected percent .

Table (2) shows that the number and percentage of male and female patient with TB during (8)years,showing the highest percentage of male was percent (68%) during the

year 2002 with number (254)case , while lowest percentage percent(55%) during the year 2005 with number(191)case , while highest percentage of female was percent(45%) in year 2005 with number (154)case, and lowest percentage percent (32%) during the year 2002with number(117) case , this table of study shows increase rate of male patient compared with female patient along the period (2001-2008) y. ,which had (1667)case of male with percent(62%)while female (1020)case ,percent(38%).

Table (3)shows numbers of TB patient according to the age group during (8)y., the highest percentage of TB in age group(15- 24)y.with number (692)case, percent(25.8%) follow by age group (25-35)y. with number (669)case, percent(24.9%) while lowest percentage in age group (0-1)y.with number(19)case, percent(0.7%)follow by age group (1-4)y. with number (53)case, percent (1.9%).this table of the study shows highest percentage of TB in young age compared with the child age .

Table(4) shows numbers and percentage of TB cases in center of Maysan governorate(Amara) as an urban and rural area from 2001 to 2008, this table shows the highest percentage of TB was in center of governorate(Amara) with number (1766)case ,percent (62%) while in rural area was (1010)case ,percent (38%).

Table(1):type and number of TB patients during(2001 – 2008)y. in Maysan governorate

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Year type of TB	2001	2002	2003	2004	2005	2006	2007	2008	Total
Active Pul TB	130	164	158	142	124	133	105	72	1028
	12.6%	16%	15.4%	13.8%	12%	13%	10.2%	7%	38.3%
Relapse	13	17	12	14	10	17	11	7	101
	12.9%	16.8%	11.9%	13.9%	10%	16.8%	10.8%	7%	3.8%
Non active p-TB	121	125	104	97	105	109	93	100	854
	14.2%	14.6%	12.2%	11.4%	12.3%	12.8%	10.9%	11.6%	31.8%
Extra TB	81	65	100	96	106	84	89	83	704
	11.5%	9.2%	14.2%	13.6%	15%	12%	12.6%	11.8%	26.2%
Total TB	345	371	374	349	345	343	298	262	2687
%	12.8	13.8	13.9	12.9	12.8	12.8	11.1	9.8	100%

Table(2): number of TB patients according to sex during
(2001-2008)y. in Maysan
governorate

Year	male	%	female	%	Total
2001	208	60	137	40	345
2002	254	68	117	32	371
2003	241	64	133	36	374
2004	226	65	123	35	349
2005	191	55	154	45	345
2006	191	56	152	44	343
2007	198	66	100	34	298
2008	158	60	104	40	262
Total	1667	62	1020	38	2687

Table(3):number of TB patient according to age group during (2001-2008)y. in Maysan governorate

age year	0-1 y	1-4 y	5-14 y	15-24y	25-35y
2001	0	5	28	87	91
	0%	1.4%	8.1%	25.2%	26.4%
2002	3	6	17	104	89
	0.8%	1.6%	4.6%	28%	24%
2003	4	7	19	113	102
	1.1%	1.9%	5.1%	30.2%	27.3%
2004	1	4	32	95	77
	0.3%	1.1%	9.2%	27.2%	22%
2005	2	10	38	70	84
	0.6%	2.9%	11%	20.3%	24.3%
2006	5	8	21	70	85
	1.5 %	2.3%	6.1%	20.4%	24.8%
2007	4	10	13	78	71
	1.3%	3.4%	4.4%	26.2%	23.8%
2008	0	3	19	75	70

	0%	1.1%	7.3%	28.6%	26.7%
Total 2687	19	53	187	692	669
	0.7%	1.9%	7%	25.8%	24.9%

35-44y	45-54y	55-64y	65y more
37	40	20	37
10.7%	11.6%	5.8%	10.7%
38	39	35	40
10.2%	10.5%	9.4%	10.8%
33	26	43	27
8.8%	7%	11.5%	7.1%
30	38	32	40
8.6%	10.9%	9.2%	11.5%
36	45	22	38
10.4%	13%	6.4%	11%
45	38	36	35
13.1%	11.1%	10.5%	10.2%
38	20	29	35
12.8%	6.7%	9.7%	11.7%
26	29	15	25
9.9%	11.1%	5.7%	9.5%

283	275	232	277
10.5%	10.2%	8.6%	10.3%

Table(4):number of TB patient in an urban (center)and rural area during (2001-2008)y.in Maysan governorate

Sector	Population	%	No of case	%
Urban(center)	408987	47.3	1677	62
Rural	456323	52.7	1010	38
Total	865310	100	2687	100

Discussion

Tuberculosis is one of the most common infections causes the death of worldwide (2),it has been reported that currently ,one- third of the worlds population is infected with the TB bacillus and approximately2 million individuals die each year of TB.(9).

TB disease can affect in any organ ,but most commonly occurs in the lungs knowning as pulmonary TB(70%-80%).The most common types of Extra-pulmonary TB disease include lymphadenitis,pleuritis, bone and joint disease, meningitis ,skin, and genitourinary disease (10).

Table(1) shows increasing the percent of TB (active, relapse, non active)(16%,16.8%,14.6%)respectivitelty during

2002 when its compared with other years in addition to increase the percent of extra pul.TB during 2005 (15%) compared with other years and more number of TB cases was during 2003 percent (13.9%) compared with other years ,that percent active pul TB was (38.3%) which lower of global standard (50%) may be due to change state of TB patient to passive TB after enter hospital and give anti-tuberculosis therapy the DOTS programme ,and the percent of non active pul TB was consedred the acceptable percentage (31.8%) while the Extra TB was (26.2%) more than expected percent (20%) all these results may be due to low service prevision and DOTS, delayed diagnosis ,poor treatment adherence, disease concealment ,poor tuberculosis control (4) in that period of exceptional circumstances generally in Iraq (11).90% of infections and deaths occurring in low- and middle income countries (10) and poverty (7). In addition to air pollution ,mainly from coal fire was found to be associated with TB in ecological study in England and Wales in 1950 (12) and increase using the biomass fuels in that period which used for cooking (wood, dung, crop residues) have been associated with TB (13) .

In addition to the chronic poor health through lifestyle factors such as homelessness, alcoholism and drug abuse (1).

The present study shows the increasing of the percent of male patient of TB (62%) when its compared with female percent (38%) in table (2), this result similar to the results of (6, 14, 15, 16, 17) which studied the gender differences of TB cases which have highlighted differences in case finding and ascertainment ,arguing that gender related barriers to TB care may contribute to the sex differences seen (18, 19) and this result similar to results of (20) in samawa city (male

69.6% and female 30.3%) and lowest rate of TB for female in Dyala city (24%) and highest rate in Salah alden city (43%) according to 2004 statistics, and (11) found that highest rate of TB was (66%) in male than female (34%) in Arabic area and that agreeable to result of (21) who found increase rate of male than female (69.2% compared with 30%) overall male to female ratio of 2.2:1. In the African region, this finding suggests that male / female rates largely due to epidemiological difference and not differential access to health care, in Nepal, the male to female sex ratio was 5:1 due to physiological, geographic, socioeconomic, cultural and health services variables (22).

Globally, tuberculosis kills women than more any other single infectious disease (9) the ratio of female to male tuberculosis cases notified is 1/1.5-2.1, 70% more smear – positive male than female TB patient are diagnosed every year and notified to the WHO (23). A recent world health organization report on global tuberculosis control reported indicated that 1.8 male cases of tuberculosis disease for every female case (24), this has been explained both by sociocultural factors, since men have more social contacts and thus a greater risk of exposure to contagious case (6) and by immunological differences between female and male in type and concentration of non- sex steroid and sex – steroid hormones steroid (23,25) that make males more susceptible than female to some infection (14,15) and other studies reduction of women's access to healthcare, interaction health care services and adherence to tuberculosis treatment (17,26,27). studies indicate that more female than male having a higher progression from infection to disease and high case- fatality rate (28).

The conclusion of recent research workshop on gender and TB that combination of biological and social factors(23),in addition to low of prioritization of women's health (29)women primary responsibility for the household and childcare(30)and experienced stigma and socio-cultural consequences of TB more profoundly than men (29,31).

There are evidence that smoking and alcohol are risk factors for TB(32,33,34) this may contribute to the excess TB in man (28) .

In the present study ,shows the highest rate of TB cases in age group (15-24)y. with percent (25.8%) follow by age group (25-35)y. with percent (24.9%) that similar to result of (20)persons who found the highest rate in TB cases among age group (25-34)y.more than other age groups and that agreeable to (35,36) who found that highest rates of TB cases (15-45)y. for each sex due to working , exposure to contagious cases , smoking and alcohol consumption which effect on the productive age groups, that passive indicator on country economy, and show in table (3) decrease rates of TB cases among age group(0-1)y. and (1-4)y. and lower (15y.)low (10%) may be due to weakness in diagnosis of TB states in this age groups which as 30% of Iraq population.

Table (4) shows increasing the rate of TB cases in center (Amara as urban) with percent (62%)when its compared with rural areas (38%) that due to air pollution ,mainly from coal fires and the risk of active disease among infected contacts also increase with closeness of contact(1),may be due to decrease rate of physically and diagnosis states in rural areas .

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دراسة وبائية للإصابة بمرض التدرن في محافظة ميسان خلال الفترة سنة
(٢٠٠١-٢٠٠٨)

نضال عبد الله هاشم
المعهد التقني - عمارة

الخلاصة : أجريت هذه الدراسة لهدف معرفة العدد الكلي لحالات الإصابة بمرض التدرن في محافظة ميسان خلال الفترة الزمنية من سنة ٢٠٠١ ولغاية سنة ٢٠٠٨ ، ومعرفة معدل إصابة الذكور مقارنة مع معدل إصابة الإناث إضافة إلى معرفة الفئة العمرية الأكثر إصابة والمنطقة الجغرافية لحالات الإصابة .

أظهرت نتائج الدراسة :-

- ان العدد الكلي لحالات الإصابة في المحافظة وصل إلى العدد (٢٦٨٧) حالة خلال الفترة من سنة ٢٠٠١ ولغاية سنة ٢٠٠٨ وان أكثر حالات الإصابة كانت تقع ضمن سنة ٢٠٠٣ (٩١,٣%) وتليه

سنة ٢٠٠٢ (١٣,٨%) وان اقل نسبة للإصابة كانت في سنة ٢٠٠٨ (٩,٨%).

- زيادة معدل إصابة الذكور (١٦٦٧ حالة ونسبة ٦٢%) مقارنة مع معدل إصابة الإناث (١٠١٠ حالة ونسبة ٣٨%).

- زيادة نسبة الإصابة بمرض التدرن في فترة الشباب، في الفئة العمرية (١٥-٢٤) سنة بنسبة (٢٥,٨%) تليه الفئة العمرية (٢٥-٣٥) سنة بنسبة (٢٤,٩%) مقارنة مع الفئات العمرية الأخرى، ان اقل معدل للإصابة كان في عمرا لطفولة .

- زيادة معدل الإصابة بالتدرن في مركز المحافظة (العمارة) (١٦٧٧ حالة ونسبة ٦٢%) مقارنة مع المناطق الريفية في المحافظة (١٠١٠ حالة ونسبة ٣٨%).