Al-Qadisiyah University

College of Nursing

Incidence and mortality of tuberculosis in DIWANIYA over past decade

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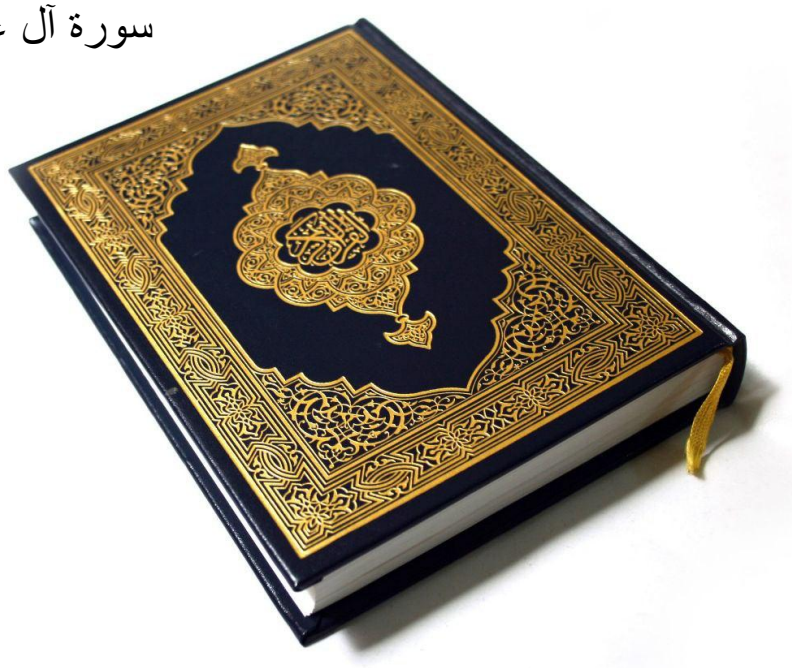
الآية

{ وَالرَّاسِخُونَ فِي الْعِلْمِ يَقُولُونَ آمَنَّا بِهِ كُلٌّ مِنْ عِنْدِ رَبِّنَا }

صدق الله العلي العظيم

سورة آل عمران – الآية ٧.



الاهداء

الحمد لله رب العالمين والصلاة والسلام على خاتم الانبياء والمرسلين واله الطيبين الطاهرين

اهدي هذا العمل .....

الى ..... من لا تستطيع الكلمات أن تفي بحقوقهم ، لأولئك الذين ضحوا بأنفسهم في سبيل الوطن ، إلى شهداء العراق العظيم

الى ..... من ربتني وانارت دربي واعانتني بالصلوات والدعوات ،الى اغلى انسان في هذا الوجود امي الحبيبة

الى ..... من عمل بكد في سبيلي وعلمني معنى الكفاح و اوصلني الى ما انا عليه ابي الكريم ادامه الله لي

الى ..... من عمل معنا بإخلاص بغية اتمام هذا العمل مشرفنا الفاضل حفظه الله

Supervisor's certification

Greetings to the researcher team from the students of the College of Nursing, who did everything they could to accomplish this research, which was done under my supervision and in accordance with scientific and research recommendations.

Signature:

Supervisor:

Date: / /

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In the beginning , we thank God Almighty , who helped us and strengthen our resolve to complete this research, and we thank Him kneeling , who gave us patience, challenge and love to make this project a science that we can benefit from it and benefit others .

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We made this project with our hearts and showed utmost sincerity to complete it. We are very grateful to all those people who helped and guided us to make such a project.

Abstract

Objective (s): The present study Intended at examining the prevalence of tuberculosis In Diwaniyah City, Iraq for the period of 2012-2022

Methodology: A A descriptive " retrospective " design was applied throughout the present study started From the period from December 4, 2022 to February 10, 2023, In order to detect tuberculosis cases in terms of the demographic characteristics of patients in the city of Diwaniyah, Iraq for the year 2012-2022. A total of (2016) registered patients with tuberculosis are selected. The current study was collected from consulting chest diseases clinics .It is located in six health sectors that cover the geographical distribution of Al – Diwaniyah Governorate the city center and contains two health sectors , Al - Shamiya District Afak District , Al – Hamza District , and Al - Daghara District) for the period from 2012 to 2022 .Data were analyzed through the application of descriptive statistical data analysis approach of frequency , percent and total scores .

Results: The total number of tuberculosis patients is (2016) patients from (January 2012 to December 2022). It reached (1143) 57% in the city center and (873) 43.3% in the districts. The percentage of males was higher than that of females in Diwaniyah government. Where males were (1060) 52.5%, while females (956) 47.4%. The most suspected age group with tuberculosis in Diwaniyah government (30-21) was about 374 (18.5%) patients. Tuberculosis inside the lung was higher than outside the lung, as It was inside the lung 1143 (57%), while outside the lung 873 (43%). In terms of treatment resistance, the number of patients who resisted treatment was 15 (0.74%) and the number of deaths was 4 (0.19%) Over the period of time (2012_2022).

Conclusion: . The urban area's Incidence rate was greater than that of the rural area.

Keyword: tuberculosis, retrospective study, prevalence, Diwaniyah City, Iraq

The goal

Research objectives

The general objective: To study the incidence and death of tuberculosis in Diwaniyah during the time period 2012_2022

Special goals:

1_ Knowing the most prevalent areas of the disease and the causes of its spread

2_ Focusing on the factors of age and gender and knowing which groups are more affected and their causes

3_ Knowing the percentage of patients who have resistance to treatment

4_ Knowing the percentage of the disease inside and outside the lung and the treatment period

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Chapter One

Introduction

Chapter one

Introduction

1-1: The medical concept of tuberculosis and its types

a- The medical concept of tuberculosis

Tuberculosis is a bacterial infection spread through inhaling tiny droplets from the coughs or sneezes of an infected person. it mainly affects the lungs, but it can affect any part of the body, including the tummy(abdomen), glands bones and nervous system .TB is a potentially serious condition, but it can be cured if isn't treated with the right antibiotics .(https://www.nhs.uk/conditions/antibiotics/).

b- Tuberculosis Types

A TB infection doesn't always mean it will get sick .There are two forms of the diseases:

Latent TB. Have the germs in your body ,but in immune system keeps them from spreading .don't have any symptoms ,and don't contagious .But the infection is still alive and can one day become active .If it is at high risk for re-activation for instance ,if have HIV ,it had an infection in the past 2years ,y-the chest x-ray is unusual ,or the immune system is weakened the doctor will give the medications to prevent active TB.

Active TB. The germs multiply and make the sick .it can spread the disease to others .Ninety percent of active cases in adult come from a latent TB infection .

A latent or active TB infection can also be drug-resistant ,meaning certain medications don't work against the bacteria .(WebMD Editorial Contributors 2022).

1-2: Classification of tuberculosis and its symptoms.

A- Classification of tuberculosis: The tuberculosis bacillus infects the lungs in more than two-thirds of cases, and the other third infects the various organs of the body (5;2005.p:1), so it is classified into:

1 - Pulmonary tuberculosis. 2- Extrapulmonary tuberculosis.

1 - Pulmonary tuberculosis:

This type is the most contagious form of tuberculosis, and it is more common, with a rate of (80%) of all cases, as it affects people who are in the most productive and working age groups.

2 - Extrapulmonary tuberculosis:

This type affects other organs of the human body and constitutes 25% of all tuberculosis cases. Its most important forms are:

(Tuberculosis of the pleura, tuberculosis of the lymph nodes, tuberculosis of the meninges, tuberculosis of the intestines and peritoneum, tuberculosis miliary, this type is classified with pulmonary tuberculosis, tuberculosis of the bones and joints, tuberculosis of the kidneys and urinary tract, tuberculosis of the male reproductive system, tuberculosis of the uterus and its appendages, inflammation of the tuberculous amour, tuberculosis of the skin)

B- Symptoms of the disease

People with inactive do not exhibit symptoms. However, they may have a positive skin reaction test or blood test .Those with active TB can show any of the following symptoms:

Bad cough(lasting longer than two weeks), pain in the chest, coughing up blood or sputum(mucus), fatigue or weakness, loss of appetite, weight loss, chills, fever and night sweats.(MLA Wondimu et al.2007).

1-3: Causes , Risk factor and Complications

a- Causes

TB is caused by the bacterium mycobacterium tuberculosis. the germs are spread through the air and usually infect the lungs, but can also infect other parts of the body. although TB is infectious, it doesn't spread easily. you usually have to spend a lot of time in contact with someone who is contagious in order to catch

it. (MLA Lyon et al.2017)

b- Risk factor

Tuberculosis continues to be a major public health problem Although efforts to control the epidemic have reduced mortality and incidence there are several predisposing factors that should be modified in order to reduce the burden of the disease the risk factors associated with tuberculosis infection and active tuberculosis including diabetes smoking alcohol use and the use of other drugs all of which can also contribute to poor tuberculosis treatments results tuberculosis can lead to complications .(J. bras. pneumol. 2018)

c- Complications

Complications without treatment, tuberculosis can be fatal. untreated active disease typically affects your lungs, but it can affect other parts of your body as well. Tuberculosis complications include:

Spinal pain.

Back pain and Stiffness are common complications of tuberculosis.

Joint damage. Arthritis that results from tuberculosis (tuberculosis arthritis) usually affects the hips and knees. Swelling of the membranes that cover your brain(meningitis).This can cause a lasting or intermittent headache that occurs for weeks and possible mental changes. liver or kidney problems. you liver and kidneys help filter waste and impurities from your bloodstream. Tuberculosis in these organs can influence their functions. Heart disorders. Rarely, tuberculosis can infect the tissues that surround your heart, causing inflammation and fluid collections that might interfere with your hearts ability to pump effectively. This condition ,called cardiac tamponade, can be fatal.(Jameson JL, et al.2020)

1-4 : Diagnosis

Diagnosis

During the physical exam, the doctor will check the lymph nodes for swelling and use a stethoscope to listen for the sounds in the lungs as you breathe. the most common diagnostic tool for tuberculosis is the skin test, although blood tests becoming more widespread. in this test, a small amount of a substance called tuberculin is injected just under the skin on the inside of the forearm .it will only feel a slight prick of the needle.(Jameson JL, et al.2020).

And also, need a diagnosis x-rays can show whether tuberculosis has affected the lungs. a sputum examination shows whether tuberculosis germs are present in the sputum that comes out of a cough. if a person cannot cough up sputum other tests may be required.

For tuberculosis outside the lungs some tests can help in diagnosis ,such as a fine-needle biopsy ,a swab from a wound ,a surgical sample ,or a morning urine sample .(health .nsw. gov. au 2005).

1-5: Nursing Care

1-Assessment

Review all medical information, including information from other providers or agencies.

• Check that the medication regimen is correct for the patient's recorded weight.

• Review for accuracy with the patient at the first encounter.

• Assess for any co-morbidities that may impact TB treatment or outcomes.

• Investigate and assess overlapping side effects of TB and all other medications.

• Become familiar with the side effects of all medications the patient is taking.

• Assess for side effects and inform any other providers or partners involved in the patient's care.

• Assess the patient's understanding of TB and provide education, including specific risk factors as needed.

• Determine infectiousness (e.g., smear positivity and grade, chest X-ray findings such as cavitation, etc.).

• Begin the interview for the contact investigation.

• Assess for possible worksite or congregate setting investigations.

• Determine the infectious period.

2- Nursing Diagnosis

Identify adherence barriers to TB therapy (e.g., pill burden, cultural beliefs, support system, difficulty dealing with TB diagnosis, transportation, or unmet mental health needs).

• Identify drug-drug interactions between TB medications and other medications the patient is taking.

• Identify barriers to obtaining care for other co-morbidities (e.g., HIV, mental health disorders, etc.).

• Locate culturally and linguistically appropriate educational resources at the patient's preferred reading level.

• Locate community resources to meet the patient's needs.

• Use culturally and linguistically appropriate services for interpreting.

3- Nursing Planning

Utilize a patient-centered communication style that incorporates individual preferences, assesses literacy and numeracy, and addresses cultural barriers to care.

• Review TB regimen and discuss any regimen or medication adjustments with the physician based on co- morbidities, drug-drug interactions, or identified barriers.

• Include strategies to address identified barriers.

• Become familiar with community providers for referral including:

• Outpatient clinics.

• Other community providers or services.

• Provide support for patients, including referral for counseling, social worker, etc.

• Discuss where DOT will be provided and at what time, considering the patient's needs and wishes.

• Provide education for household contacts and at the patient's worksite or congregate setting, if applicable.

4-Implantation

Acknowledge and address the patient's perceptions and fears as part of regular communication.

• Conduct a thorough contact investigation of household, social, and work contacts.

• Begin DOT according to the plan developed in conjunction with the patient.

• Review the patient's chart frequently.

• Ensure collaboration between the TB physician and physician treating other conditions (e.g., HIV infection diabetes, mental illness) and communicate changes in medication regimen or treatment length, as needed.

• Closely monitor patients with co-morbidities taking other medications and/or those with known alcohol or drug use for side effects and drug interactions; discuss with the TB physician as needed.

• Ensure connection with outside agencies, assistance programs, or other resources where available; refer and collaborate to ensure access to needed services.

• Offer incentives (e.g., gift cards or cash) and enablers that are valuable to the patient.

• Review the plan regularly and adjust accordingly.

• Address barriers to adherence for TB therapy.

• Address barriers to adherence to other treatment that impacts TB (e.g., diabetes medications or ART).

• Document all changes to the plan.

5-Evaluation

Monitor response to treatment monthly including:

• Sputum collection and time to culture conversion (evaluate the need for extending TB therapy).

• Laboratory testing ordered by the physician (e.g., LFTs, bacteriology) monthly.

Monitor treatment adherence including:

• Adherence standards such as monthly adherence rate.

• Behavioral measures, such as keeping clinic appointments.

• Measurable clinical outcomes, including improvement of symptoms or radiographic findings.

• Review sensitivities and alert the physician when medications may be dropped from the regimen, in order to decrease pill burden.

• Assess and document completion of therapy.

• Count doses for initial and continuation phase.(WHO. 2017).

1-6: Treatment and prevention

a- Treatment of the tuberculosis

Individuals diagnosed with a pulmonary form of tuberculosis ,not exposed to anti-tuberculosis drugs for >1month(i.e., “new cases” of tuberculosis),have to be treated for 6 month .During the 2 month intensive phase ,patients should be administered a combined regimen including ethambutol ,isoniazid ,pyrazinamide ,and rifampicin .Only isoniazid and rifampicin are prescribed during the 4month continuation phase .(WHO.2010).

Table 1-1: Treatment of the tuberculosis

Drug classes	Anti-TB Drugs	Comments
First –line drugs	Isoniazid (INH)	INH,PZA,AND EMB form the core of initial treatment regimen .
	Rifampin (RIF)	
	Pyrazinamide (PZA)	
	Ethambutol(EMB)	
	Rifabutin(RBT) Rifapentine (RPT)	May be used as a substitute for RIF in the treatment of all forms of TB caused by organisms that are known or presumed to be susceptible to this agent .
Second –line drugs	Streptomycin (SM)	SM was formerly considered to be a first –line drug and in some instances ,is still in initial treatment . Increasing prevalence of resistance to SM in many parts of the world has decreased its overall usefulness .
	Cycloserine	These drugs are reversed for special situation such as drug intolerance or resistance .
	Capreomycin	
	P-Aminosalicylic acid	
	Levofloxacin	
	Moxifloxacin	
	Gatifloxacin	
	Amikacin/Kanamycin	
	Ethionamide	

Anti-TB drugs currently used in the united states .Errata(January 7,2005).

Tuberculosis Medication Side Effects

Like any medication ,TB drugs can have side effects .

Common isoniazid side effects include :

- Numbness and tingling in the hands and feet .
- Upset stomach ,nausea ,and vomiting .
- Loss of appetite .
- Weakness .

Ethambutol side effects may include :

- Chills.
- Painful or swollen joints .
- Belly pain ,nausea ,and vomiting .
- Loss of appetite .
- Headache .
- Confusion .

Some pyrazinamide side effects include :

- Lack of energy .
- Nausea and vomiting .
- Loss of appetite .
- Muscle or joint pain .

Common Rifampin side effects include :

- Skin rash .
- Upset stomach ,nausea ,and vomiting .
- Diarrhea .
- Loss of appetite .
- Inflamed pancreas .

(WebMD Editorial Contributors 2022).

b- Tuberculosis Prevention

To help stop the spread of TB :

If have a latent infection ,take all of the medication so it doesn't become active and contagious .

If have active TB ,limit the contact with other people .Cover the mouth when the laugh ,sneeze ,or cough .Wear a surgical mask when the around other people during the first weak s of treatment .If have traveling to a place where TB is common ,avoid spending a lot of time in crowded places with sick people.

UES TUBERCULOSIS VACCINE = BCG VACCINE

It is a live bacterial vaccine at reduced dose

immunization schedule

- Children: 0.05 ml as a single dose, as soon as possible after birth
- If immunized after one year of age: 0.1 ml as a single dose

(WebMD Editorial Contributors 2022).

Chapter tow

Patients and Methods

Chapter tow

Patients and Methods

2-1 : Patients and Methods

The study started after obtaining approval from the college of nursing ,Al-Qadisiyah university ,on 4/12/2022.

The current data of studying was collected from consulting chest diseases clinics .It is located in six health sectors that cover the geographical distribution of Al-Diwaniyah Governorate(the city center and contains two health sectors ,Al-Shamiya District ,Afak District ,Al-Hamza District ,and Al-Daghara District) . (Table1).

The total number of tuberculosis patients registered is(2016) patient ,from (January2012 to December 2022). It consisted of (1109)males and(1087)females.

Participate in this retrospective study . The mean age range of the patients enrolled in this study is (20-70)years .

The inclusion criteria patients were included in the current study if they met the following criteria :

1-Diagnosis of tuberculosis by a general specialist(2012-2022).In Diwaniyah Governorate .

2-Complete data related to the study were available .

Data collection

For each patient participating in the study ,the following information was recorded:

Patients demographic data and diagnosis the location of the disease(pulmonary or extra-pulmonary). For demographic data ,only information about the age ,sex and residence of the patients was available in the records .The residence was classified according to the four regions of the city of Al- Diwaniyah(the governorate center , Al-Shamiya district ,Afak district ,Al-Hamza district).

Clinical and radiological examination and treatment result .(Table2).

Table 2-1:Distribution of patients according to residency

Year	Governorate center	Afak District	Al-Shamiya district	Al-Hamza district
2012	175	43	47	55
2013	145	39	38	47
2014	88	37	25	45
2015	95	23	29	37
2016	101	20	16	37
2017	112	24	25	38
2018	102	20	15	32
2019	132	18	22	43
2020	86	17	6	15
2021	79	22	14	17
2022	56	13	8	13

Table 2-2- :Treatment outcomes for TB patients

Outcomes	Definitions
Cured	A pulmonary TB patient with a bacteriologically confirmed TB when begin treatment who was culture or smear –ve in the last month of treatment and on at least one previous occasion .
Treatment completed	A TB patient who finished treatment with no evidence of treatment failure BUT with no report to show that culture or sputum smear results in the last month of treatment and on at least 1 previous occasion were –ve ,either because of unavailability of the results or the tests were not done .
Treatment failed	A TB patient with +ve , either sputum smear or culture at month five or later on during the treatment .
Died	A TB patient who dies due to any cause before starting the treatment or during the treatment course .
Lost to follow-up	A TB patient who did not begin his /her treatment or whose treatment was interrupted for two or more consecutive months .
Not evaluated	A TB patient for whom there is no assignment for treatment outcome. This includes cases “transferred out” to other treatment unit ,in addition to cases for whom the outcomes of treatment is not known .
Treatment success	Summation of treatment completed and cured .

Chapter three

Results and discussion

Chapter three

Results and discussion

3-1:Number of patients over ten years

Table3-1:show Number of patients over ten years

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	total
320	269	195	204	174	199	141	156	124	129	105	2016

Figure 1 : Represented Number of patients over ten years

3-2: the patient's location in the governorate

Table3-2: show the patient's location in the governorate

Year	Governorate center	Afak District	Al-Shamiya District	Al-Hamza district
2012	175	43	47	55
2013	145	39	38	47
2014	88	37	25	45
2015	105	27	31	41
2016	101	20	16	37
2017	112	24	25	38
2018	94	15	14	18
2019	100	12	20	24
2020	86	17	6	15
2021	76	22	14	17
2022	61	18	12	14

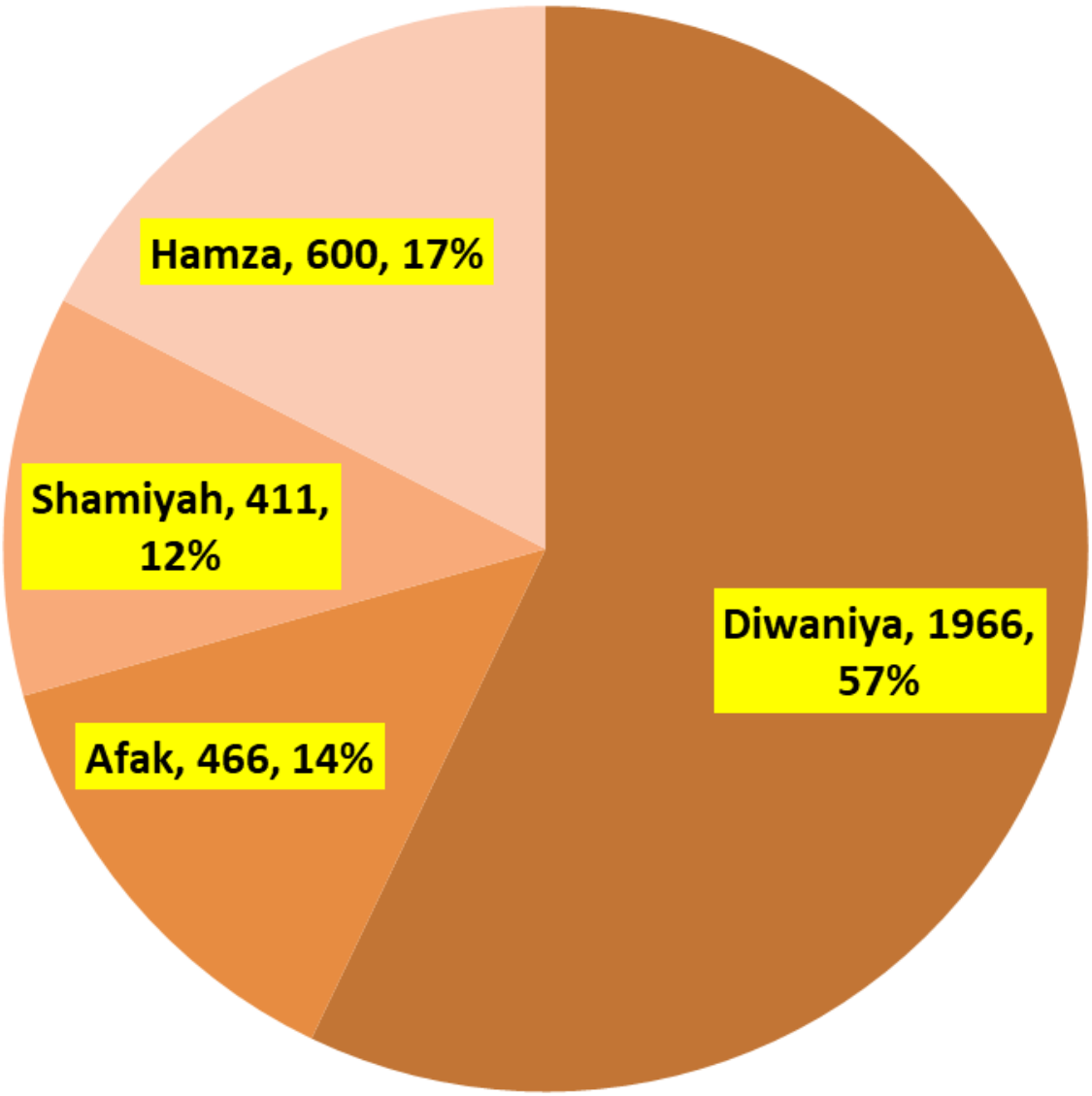
tuberculosis in the city center are more than the districts The reason is that the poor quality of housing and overcrowding are important It is closely associated with an increased prevalence of tuberculosis, In addition to environmental pollution and the spread of disease through air and contact

Diwaniyah city center showed highest percentage from total patients than other district the city center was 56.6% and the districts 43.3%.

In Baghdad the infection rate was in rural areas 66 / 100,000 per year and urban area 166 / 100,000 per year (Ali et al….2012-2016)

Studies in Iran showed that the prevalence of the disease was 61% in urban areas, 39% in rural areas (Jamshid et al….2014)

Figure 2: Distribution of patients by location in the governorate



3-3: the patient's gender

Table3-3: Show the patient's gender

Year	Female	Male
2012	144	176
2013	122	147
2014	97	98
2015	90	114
2016	81	93
2017	103	96
2018	58	83
2019	85	71
2020	66	58
2021	60	69
2022	50	55

Men are more likely than women to suffer from tuberculosis, because the presence of men in prisons is huge, and 25% of those infected with this disease are in prisons, because the budget allocated to prisons is not sufficient to ensure acceptable detention. Prison overcrowding and poor ventilation facilitate the transmission of the disease, in addition to the lack of food that makes detainees Weakened and more susceptible to disease

The reason may be due to the spread of the habit of smoking among males and the fact that they are more exposed to pollution than others because of their work

the percentage of males is higher than that of females in the province of Diwaniyah, where the percentage of males is 52.5%, while the females are47.4%, as well as in the rest of the Iraqi governorates, for example, in the Baghdad governorate, the infection of males is 54.9%, while the females are 45.1%,(Aljanaby et al…2022)

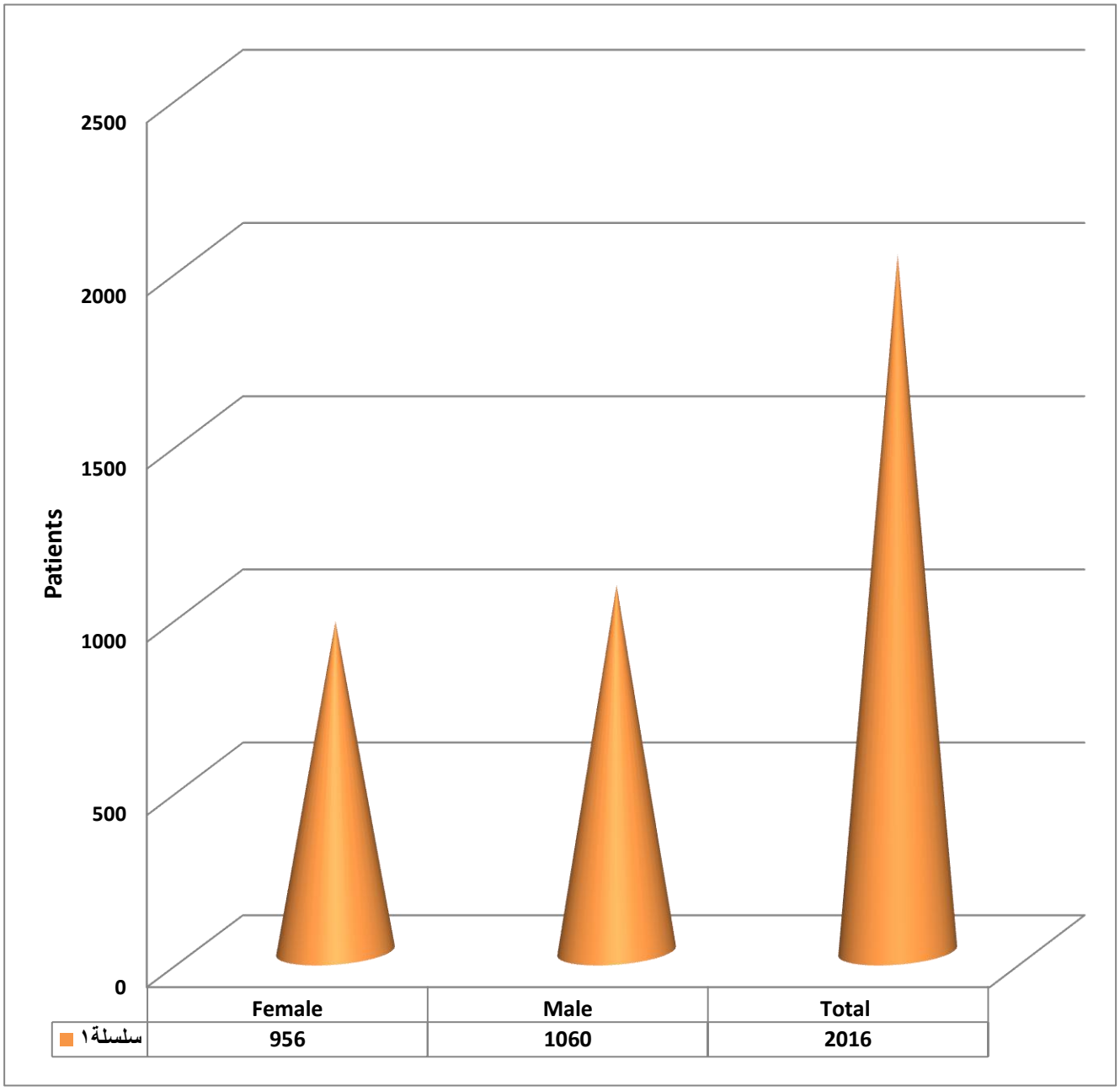
while in Duhok ,Iraqi Kurdistan region the percentage Infected males 61.2%, while females 55.4%.(Fatima et al….2020)

As for the countries neighboring Iraq, the percentage of males is higher than that of females in the Kingdom of Saudi Arabia, where the percentage of males is estimated at 62.8%, while females 37.2%.(Who …2013)

As for the Islamic Republic of Iran, the percentage of infected males in Yazd is 53%, Shiraz 63%, and Zabul 64 55% and Abadan, while for females 50.3%

(Ayatollahi J et al…2010,Babamahmdi F et al…2015, who 2013)

Figure 3: Represents the distribution of patients by gender



3-4:the patient's Age

Table3-4 :show the patient's Age

Year	1month-10year	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
2012	15	51	50	46	41	49	47	12	4	5
2013	16	34	45	51	42	31	40	8	0	2
2014	11	23	33	35	27	24	31	7	2	2
2015	14	23	38	29	44	25	20	8	3	0
2016	15	27	36	17	26	32	16	3	0	2
2017	9	27	37	32	29	32	21	7	4	1
2018	4	23	30	18	20	25	16	4	1	0
2019	9	23	42	21	20	22	15	2	1	1
2020	8	20	17	12	22	16	20	6	2	1
2021	8	17	23	20	23	20	11	6	1	0
2022	2	14	23	15	20	12	12	6	1	0

After collection data related to age, it was found that the most age group susceptible to tuberculosis in Al-Diwaniyah governorate is from the age of (21-30 years) that was about 374 patients (18.5%).

smoking, alcohol, drugs and the prison , as well as disease that cause weakened immune system (such as diabetes, malnutrition and underweight, exposure to Chemotherapy , severe kidney disease and organ transplantation).

Data collection shows in Diwaniyah governorate that age group from (one month to 10 years) was 111 patients (5.5%) ,

(11-20 years) was about 282 patients (14%) ,

(21-30 years) was about 374 patients (18.5%) , (31-40 years) was about 296 patients (14.7%) , (41-50 years) was about 314 patients (15.5%) , (51-60 years) was about 288 patients (14.3%) , (61-70 years) was about 249 patients (12.4%),(71-80 years) was about 69 patients (3.4%) , (81-90 years) was about 19 patients (1%) , (91-100 years) was about 14 patients (0.7%).

During 2010, The study was found in Iraqi Kurdistan, Sulaymaniyah a total of 530 patients, the older age groups were the most affected with 40% of cases affecting people aged 55 years and over and only 3% affecting For children up to 14 years old.(Kamaran et al.., 2010)

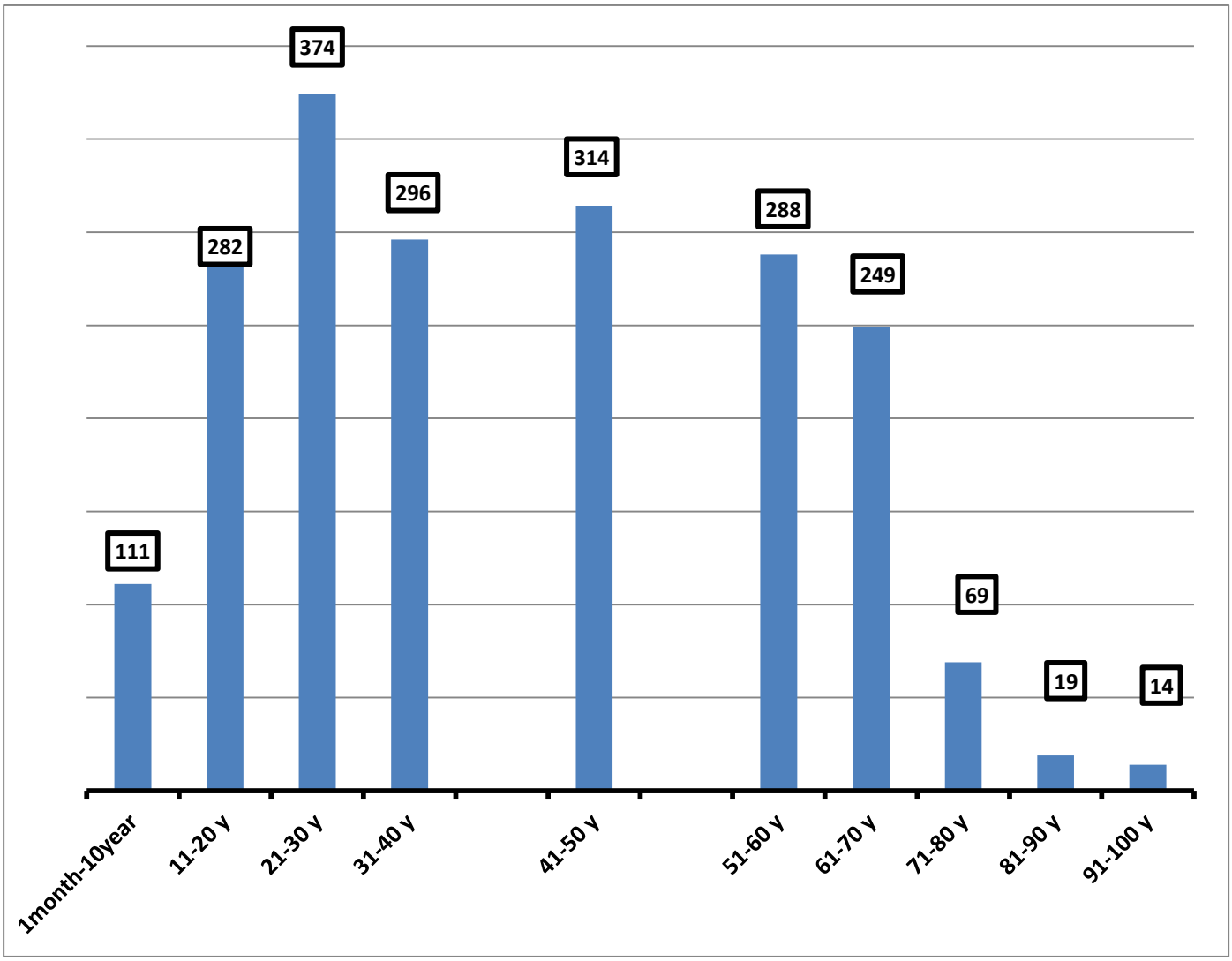
The study was found in AL - Najaf 174 PTB 2019 The age group 16-24 was the highest infected.(Al-Hadraawy et al..., 2022)

The study in Karbala Between 1988 and 2017 there were a total of 8665 patients with tuberculosis, while between 2005 and 2017 the total was 4055: 2592 patients with pulmonary tuberculosis The most common age group was 25-34 years.(AL-Mousawi , 2020)

The study in Saudi ArabiaTB was predominant among the younger age group (59.4%) compared to the elderly population (35.8%) and pediatrics (4.7%).(Mohammed et al.., 2020)

The study was found in TB in Iran was about 1562 (73%) patients ,The highest percentage of TB cases were in the age group of 15-64 years, 597 (24%) patients were over 64 years old and 79 (3%) patients were less than 15 years old.(Hasan et al., 2014)

Figure4: Represents the distribution of patients by age



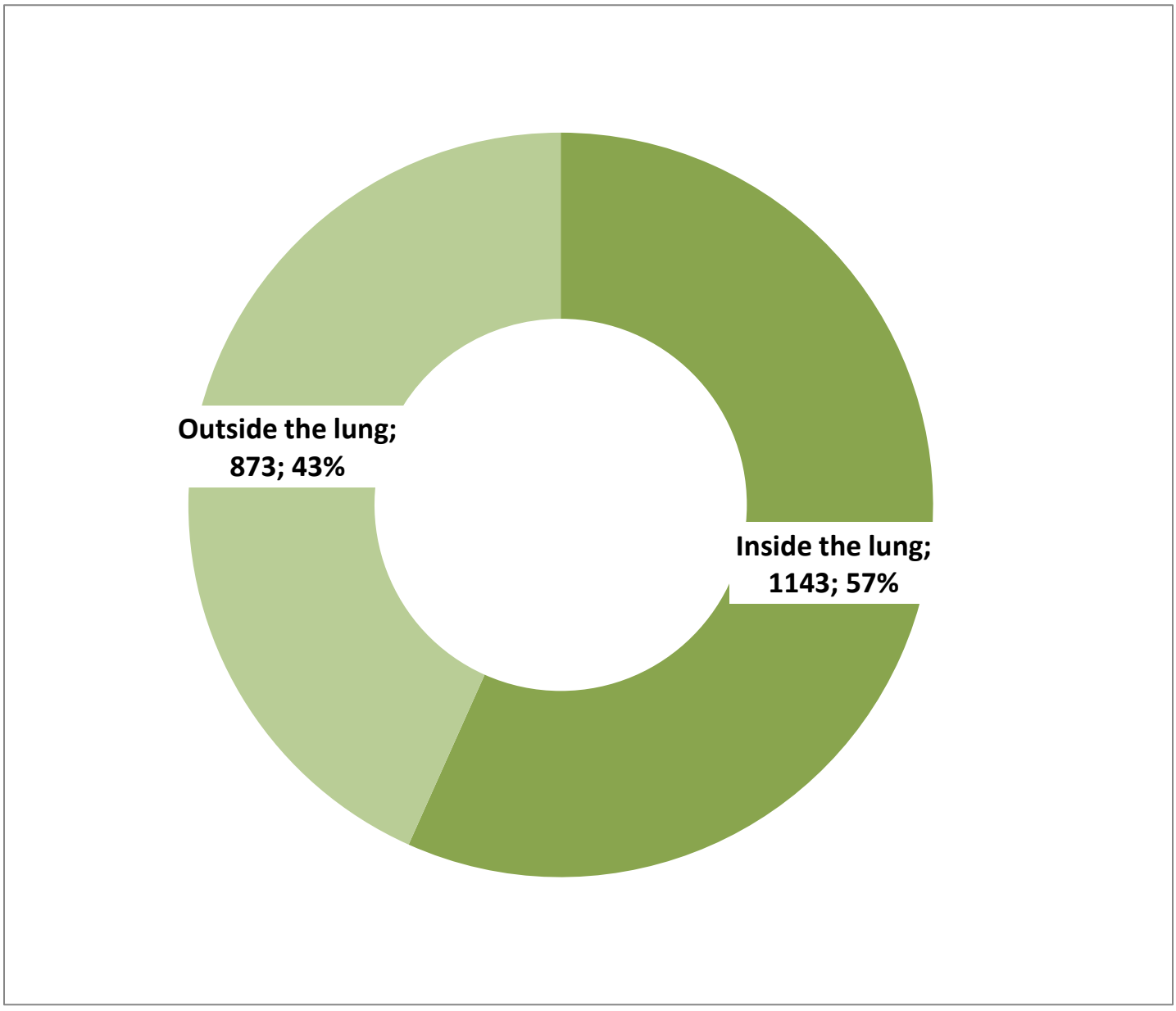
3-5: the location of pulmonary tuberculosis in the body

Table3-5:show the location of pulmonary tuberculosis in the body

Year	Inside the lung	Outside the lung
2012	228	92
2013	179	90
2014	90	105
2015	123	81
2016	96	78
2017	100	99
2018	79	62
2019	64	92
2020	63	61
2021	62	67
2022	59	46

Patients with pulmonary tuberculosis are more than patients with extra pulmonary tuberculosis that because The lungs are exposed to air directly and are exposed to the entry of Tuberculosis spreads through the air like the common cold. When infected people cough, sneeze, talk, spit, laugh or sing, they propel TB germs (known as bacilli) into the air. If a healthy, uninfected person inhales air containing tuberculosis bacilli, he can become infected and smoking is another cause because Among those who start smoking at an early age, smoking significantly slows down lung development. The percentage of pulmonary tuberculosis is 57% and is more than the percentage of extra pulmonary tuberculosis is 43% in the province of Diwaniyah . In other studies the percentage of pulomonary tuberculosis Iran was 71.4% percentage of extra pulmonary tuberculosis in another studies such as Syria was 32.5% Turkey was 49.4%(salah Tofiq et al. 2019) and percentage of pulmonary tuberculosis in Baghdad was 47.64 % . The percentage of extra pulmonary tuberculosis in Baghdad was 52.36% (Ali Kareem et al .2020)

Figure 5: The distribution of patients according to the location of tuberculosis in the body



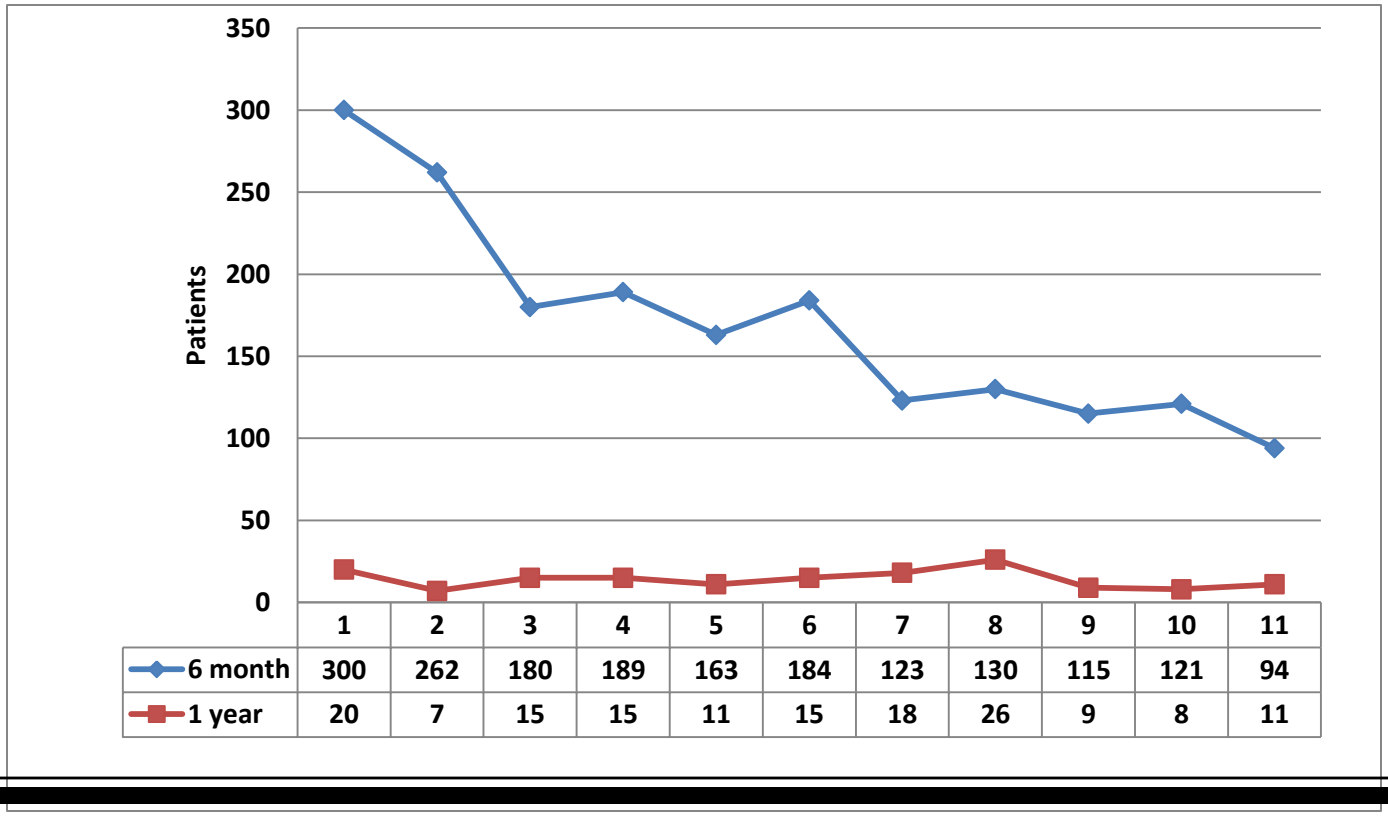
3-6:treatment period

Table3-6: show the treatment period

Year	6 month	1 year
2012	300	20
2013	262	7
2014	180	15
2015	189	15
2016	163	11
2017	184	15
2018	123	18
2019	130	26
2020	115	9
2021	121	8
2022	94	11

Tuberculosis treatment takes a long period, ranging between 6-9 months, depending on the type of tuberculosis, including bone tuberculosis, whose treatment period is one year.

Figure6: The distribution of patients according to the treatment period



3-7: treatment-resistant

The number of treatment-resistant patients (15)(0.74%) and the number of deaths(4)(0.19%) over ten years

drug-resistant M. tuberculosis In 2013, Varghese et al. , in a study of drug resistant isolates from a nationwide collection, it was found that 14 strain lineages are common among the Saudi resident population. Major lineages observed were Delhi / CAS (clinical assessment services)(21.1 %) , EAI (11.2 %) , Beijing (11.2 %) , and main branches of the Euro-American super lineage such as Ghana (14.9 %) , Haarlem (10.6 %) , and Cameroon (7.8%). In addition, M. bovis BCG(bacille calmette_Guerin) (4.6%), Uganda -1 (2.8%), S (2.5%), X (2.2%), New I (1.5%), and TUR(transurethral resection)(1.5%) were also observed. Interestingly, a higher representation of lineages X, S, Haarlem, and M. bovis BCG(bacille calmette_Guerin)were observed among Saudi nationals, while EAL, Beijing, Delhi / CAS, and Ghana were well defined among immigrants, even in the highly admixed nature of strain clustering.(Al-Hajoj S et al …2013) .

Epidemiology of drug - resistant tuberculosis. In Saudi Arabia Few small-scale studies conducted in the country have reported the proportion of resistance to any first fine drugs ranging between 14% and 20%, with MDR (Multidrug_ resistant)TB between 1% and 44% (Mohammad V et al… 2007) .

These studies were retrospective analyzes focused on specific categories of patient populations and did not follow any standard. guidelines or quality control measures. Until 2013, the true burden of drug-resistant TB was not known, as the country never conducted a representative national survey to measure levels and patterns of anti-TB drug resistance. In 2013, Al-Hajoj et al.

reported the results of the first nationwide drug surveillance survey conducted with a representative population of nationals and immigrant patients.

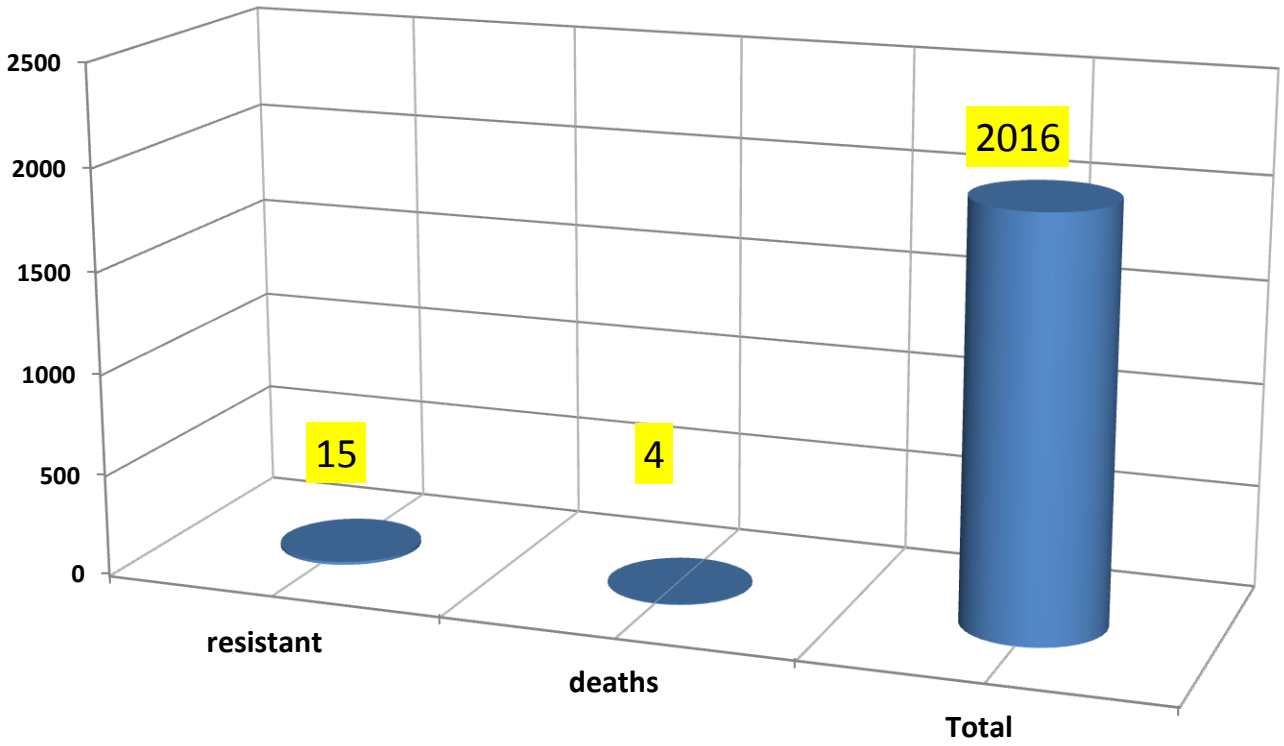
This was the first study in the country conducted under the guidelines of the WHO(World health organization) with strict quality control analysis. A nationwide annual collection of 1,904 M. tuberculosis isolates from all the provinces were subjected to first line drug susceptibility testing.

The results were promising; a low level (4%) of MDR(multidrug _resistant)-TB was found, whereas the rate of any drug resistance was found to be 23.6%. Though the MDR-TB was low in prevalence, it was strictly confined to the western region of the country and was more predominant among immigrant workers [6].

Interestingly, large discrepancies in the reporting of drug susceptibility testing of M. tuberculosis were reported in the country, particularly in defining MDR TB.

A recent study conducted with a nationwide collection of isolates showed discrepancies of 2.3% in defining MDR-TB among diagnostic laboratories around the country. Nonetheless, there was also a high level of strains falsely reported as resistant (36.3%), and false susceptibility among the reports from the susceptibility diagnostic laboratories was found to be 31.8%. These finding shows that even though a common diagnostic technique is followed in all the laboratories, errors are still made. Moreover, the false - positive or false negative reporting has serious consequences for patient management [30]. Molecular characterization of drug-resistant TB Recently, Varghese et al. investigated the diversity of mutations in both INH(isonicotinic acid hydrazide)- and RIF(right Iliad fossa)-resistant M. tuberculosis isolates. High frequency of rpoB(recovery point objective) codon 531 mutations (67.1%) in RIF-resistant strains and katG codan 315 mutations (65.2%) in INH-resistant strains were reported. In addition, mutation to inh position -15 conferring INH resistance and codons 516, 510, and 526 of the poß gene were also observed. Mutations responsible for INH resistance, katG 315, and inhA position -15 were dominant among the newly diagnosed cases [31]. Another recent study on a nationwide collection of 415 INH- and RIF resistant isolates, to determine the diverse occurrence of mutations among local and migrant populations, showed huge diversity of rpoß, karG, and inhA mutations, along with some unknown mutations. In addition, a statistically significant association between the geographical origin of the patients and the type of mutations observed was clearly evident. The autochthonous population showed a predominance of rpoB codon 516 and 526 mutations.

Figure 7: Represents the number of patients with treatment resistance and the number of deaths



Chapter four

Conclusion and Recommendations

Chapter four

Conclusion and Recommendations

4-1:conclusions

The total number of tuberculosis infections in Al-Diwaniyah for the previous ten years from (2012_2022) was 2016

The statistics of Diwaniyah governorate showed that the disease prevalence rate in the city center was 56.6% and the districts 43.3%.

the percentage of males is higher than that of females in the province of Diwaniyah, where the percentage of males is 52.5%, while the females are 47.4%.

Patients with pulmonary tuberculosis are more than patients with extra pulmonary tuberculosis that because The lungs are exposed to air directly and are exposed to the entry of Tuberculosis spreads through the air like the common cold.

After collection data related to age, it was found that the most age group susceptible to tuberculosis in Al-Diwaniyah governorate is from the age of (21-30 years) that was about 374 patients (18.5%).

The number of treatment-resistant patients (15)(0.74%) and the number

of deaths(4)(0.19%) over ten years

4-2: Recommendations

1_ Early diagnosis of children's cases and treatment of emergency cases.

2- Health awareness for citizens and patients who are suitable for the education and health education program and providing them with correct information about the disease.

3- Formation of rural health committees .

4- Improving the economic and social level of citizens by carrying out development projects for poor families to improve living conditions.

5- Following up the cases of patients who did not continue their treatment, summoning them through health visitors, persuading them to continue treatment, examining contacts of patients and treating them.

6- Immunizing newborns with the BCG vaccine.

7- Improving the health condition in prisons, reducing overcrowding among prisoners, taking care of their health conditions, and isolating the infected prisoners.

References

References

1. القران الكريم سورة آل عمران – الآية ٧
2. . Al-Otaibi F, El Hazmi MM (2010) Extra-pulmonary tuberculosis in Saudi Arabia. Indian J Pathol Microbiol 53: 227-231.
3. Abouzeid MS, Al RF, Memish ZA (2013) Mortality among tuberculosis patients in Saudi Arabia (2001-2010). Ann Saudi Med 33: 247-252.
4. Abouzeid MS, Zumla AI, Felemban S, Alotaibi B, O'Grady J, Memish ZA (2012). Tuberculosis trends in Saudis and nonSaudis in the Kingdom of Saudi Arabia--a 10 year retrospective study (2000-2009). PloS one 7: e39478.
5. Al Mousawi, A. (2020). Three decades History of Tuberculosis Control in Kerbala/Iraq. Iraq Medical Journal, 4(2).
6. AL-Hadraawy SK, AL-Hadrawi KK, Aljanaby IA, Aljanaby A.(2022).Prevalence of pulmonary tuberculosis in Al-Najaf governate, Iraq. ResearchGate , 11:675.
7. Ali Kareem Durib1, Ekterina Valerievna Blinova2. Tuberculosis in Baghdad, Iraq 2012-2016: Retrospective Study. Medico-legal Update, October-December 2020, Vol. 20, No. 4
8. Al-Orainey I, Alhedaithy MA, Alanazi AR, Barry MA, Almajid FM (2013) Tuberculosis incidence trends in Saudi Arabia over 20 years: 1991-2010. Ann Thoracic Med 8: 148- 152.
9. Ayatollahi J, Sharifi MR, Razmi H, Mahmoodiardekani B. The survey of tuberculosis patients in Yazd and Shiraz. Q Res J Yazd. 2010;9(1):1–7
10. Babamahmoodi F, Alikhani A, Yazdani Charati J, Ghovvati A, Ahangarkani F, Delavarian L, et al. Clinical epidemiology and paraclinical findings in tuberculosis patients in north of Iran. Biomed Res Int. 2015;2015:381572. doi: 10.1155/2015/381572. [PubMed: 25695067]
11. Bates MN, Khalakdina A, Pai M, Chang L, Lessa F, Smith KR. The risk of tuberculosis from exposure to tobacco smoke: a systematic review and meta-analysis. Arch Intern Med. 2007;167(4):335-42
12. Bukhary ZA, Alrajhi AA (2004) Extrapulmonary tuberculosis, clinical presentation and outcome. Saudi Med J 25: 881-285.

13. CDC. Treatment of tuberculosis. American Thoracic Society, CDC, and Infectious Diseases Society of America. MMWR 2003; 52 (No. RR-11).
14. Errata (January 7, 2005)
15. Gleason JA, McNabb SJ, Abduljadayel N, Abouzeid MS, Memish ZA (2012) Tuberculosis trends in the Kingdom of Saudi Arabia, 2005 to 2009. Ann Epidemiol 22: 264-269.
16. Global Journal of Health Science; Vol. 6, No. 6; 2014 ,ISSN 1916-9736 E-ISSN 1916-9744 ,Published by Canadian Center of Science and Education Spatial Clustering of Tuberculosis Incidence in the North of Iran Jamshid Yazdani-Charati1 , Hasan Siamian2 , Anoushirvan Kazemnejad3 & Mohammad Vahedi4
17. Karadakhy K, Othman N, Ibrahimm F, Saeed AA, Amin A. (2016).Tuberculosis in Sulaimaniyah, Iraqi Kurdistan: A Detailed Analysis of Cases Registered in Treatment Centers. Tanaffos , 15(4):197-204.
18. Medhat F. ,Amira H. , Tbahany M. , Elawady M.(2019). Tuberculosis in Upper and Lower Egypt before and after directly observed treatment short-course strategy: a multi-governorate study.Egyptian Journal of Bronchology, 13, 722-729.
19. Ministry of Health Saudi Arabia (2007) Statistical Book for the Year 1427. Riyadh, Saudi Arabia: MOH.
20. Ministry of Health Saudi Arabia (2012) Statistical Book for the Year 1432. Riyadh, Saudi Arabia: MOH.
21. Mokaddas E, Ahmad S, Samir I (2008) Secular trends in susceptibility patterns of Mycobacterium tuberculosis isolates in Kuwait, 1996-2005. Int J Tuberc
22. Qari FA (2002) The spectrum of tuberculosis among patients of the King Abdul Aziz Unveristy Hospital, Jeddah, Saudi Arabia. Southeast Asian J Trop Med Public Health 33: 331- 337.
23. Qutub, M., Wali, G., Alraddadi, B., Bahabri, N., Aldabbagh, Y., Zaki, S., Mehdawi, F., Govindan, P., Vattappillil, A., & Alamoudi, E. (2020). Tuberculosis Diagnostics and Susceptibility in Saudi Arabia's Western Region. International Journal of Scientific Research and Management, 8(11), 430–436.

24. Salah Tofik Jalal Balaky1, Ahang Hasan Mawlood1 and Nazar P. Shabila2*. Survival analysis of patients with tuberculosis in Erbil, Iraqi Kurdistan region.BMC infectious disease .2019
25. Saudi Arabia Central Department of Statistics and Information (2013) Statistical Year Book 1434. Riyadh: CDSI, KSA.
26. Tuberculosis in Baghdad, Iraq 2012-2016: Retrospective Study Ali Kareem Durib1 , Ekterina Valerievna Blinova2
27. United Nations Statstics Division (2013) Millenium Development Goals Indicators.
28. van Zyl Smit RN, Pai M, Yew WW, Leung CC, Zumla A, Bateman ED, et al. Global lung health: the colliding epidemics of tuberculosis, tobacco smoking, HIV and COPD. Eur Respir J. 2010;35(1):27-33.
29. Varghese B, Supply P, Shoukri M, Allix-Beguec C, Memish Z, Abuljadayel N, Al-Hakeem R, AlRabiah F, Al-Hajoj S (2013) Tuberculosis transmission among immigrants and autochthonous populations of the eastern province of Saudi Arabia. PloS one 8: e77635.
30. Who , TUBERCULOSIS CASE MANAGEMENT: A GUIDE FOR NURSES…..(2017)
31. WHO . Global Tuberculosis Report 2013 2013. Available from: http:// www.who.int/entity/tb/publications/globalreport/en/index.htm
32. WHO. 2013
33. World Health Organization (2013) Global Tuberculosis Report 2013. Geneva: WHO.
34. World Health Organization [homepage on the Internet]. Geneva: World Health Organization; c2016 [cited 2016 Dec 1]. Tuberculosis and diabetes.

خلاصة

الهدف (الأهداف): تهدف الدراسة الحالية إلى فحص انتشار مرض السل في مدينة الديوانية ، العراق للفترة ٢٠١٢-٢٠٢٢.

المنهجية: تم تطبيق تصميم وصفي "بأثر رجعي" خلال الدراسة الحالية التي بدأت من الفترة من ٤ ديسمبر ٢٠٢٢ إلى ١٠ فبراير ٢٠٢٣ ، من أجل الكشف عن حالات السل من حيث الخصائص الديموغرافية للمرضى في مدينة الديوانية ، العراق. للعام ٢٠١٢-٢٠٢٢. تم اختيار إجمالي (٢٠١٦) مرضى مصابين بالسل. جمعت الدراسة الحالية من عيادات استشارية لأمراض الصدر ، وتقع في ستة قطاعات صحية تغطي التوزيع الجغرافي لمحافظة الديوانية وسط المدينة ، وتحتوي على قطاعين صحيين ، مديرية الشامية ، مديرية عفك ، مديرية الحمزة ، و مديرية الدغارة) للفترة من ٢٠١٢ إلى ٢٠٢٢ ، وقد تم تحليل البيانات من خلال تطبيق منهج تحليل البيانات الإحصائية الوصفية من حيث التكرار والنسبة المئوية وإجمالي الدرجات.

النتائج: بلغ العدد الإجمالي لمرضى السل (٢٠١٦) مرضى من (يناير ٢٠١٢ إلى ديسمبر ٢٠٢٢). وبلغت (١١٤٣) ٥٧٪ في وسط المدينة و (٨٧٣) ٤٣.٣٪ في المديريات وكانت نسبة الذكور أعلى من الإناث في محافظة الديوانية. حيث بلغت نسبة الذكور (١٠٦٠) ٥٢.٥٪ ، بينما كانت الإناث (٩٥٦) ٤٧.٤٪. أكثر الفئات العمرية المشتبه بإصابتها بالسل في محافظة الديوانية (٣٠-٢١) كانت حوالي ٣٧٤ (١٨.٥٪) مريض. كان السل داخل الرئة أعلى منه خارج الرئة ، حيث كان داخل الرئة ١١٤٣ (٥٧٪) ، بينما كان خارج الرئة ٨٧٣ (٤٣٪). من حيث مقاومة العلاج ، كان عدد المرضى الذين قاوموا العلاج ١٥ (٠.٧٤٪) وعدد الوفيات ٤ (٠.١٩٪) خلال الفترة الزمنية (٢٠١٢_٢٠٢٢) .

خاتمة: . كان معدل الإصابة في المناطق الحضرية أكبر من المناطق الريفية.

الكلمة المفتاحية: السل ، دراسة بأثر رجعي ، انتشار المرض ، مدينة الديوانية ، العراق

جامعة القادسية

كلية التمريض

نسبة حدوث ووفيات السل في الديوانية محافظة على مدى العقد الماضي

بحث التخريج المقدم إلى

جامعة القادسية / كلية التمريض

كجزء من متطلبات الحصول على شهادة البكالوريوس في

علوم التمريض

من قبل الطالبات

فاطمة عبد الحسن ناجي

فاطمة علي عبد الرحمن

زينب نعمة عبود

رسل خالد كامل

زهراء رسول شمخي

زينب كريم راجي

المشرف الدكتور

عبد الأمير ليلو العبيدي

٢٠٢٢-٢٠٢٣