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Assessment of the Major Anti-Tuberculosis Drugs Available to Patients at Primary Health Care Centers in Baghdad City

تقييم الأدوية الرئيسية المضادة للتدرن المتوفرة للمرضى في مراكز الرعاية الصحية الأولية في مدينة بغداد

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المستخلص:

الهدف: تقييم الأدوية الرئيسية المضادة للتدرن المتوفرة للمرضى في مراكز الرعاية الصحية الأولية في مدينة بغداد .

المنهجية : : دراسة مقطعية متقاطعة وصفية أجريت من ٢٩ كانون الأول ٢٠١٤ لغاية ١٠ تموز ٢٠١٥، وتم اختيار العينة بطريقة العينة الاحتمالية (عينة عشوائية) من (١٨) مركز رعاية صحية أولية واختيارها وفقا لمعايير عينة الدراسة ،موزعين كالأتي : تم اختيار(٦) قطاعات و (١١) مركز رعاية صحية أولية من دائرة صحة بغداد الرصافة و(٦) قطاعات و(٧) مركز رعاية صحية أولية من دائرة صحة بغداد الكرخ. الاستبيان تكون من جزئين رئيسيين: جزء المعلومات العامة : ويشمل ذلك (٥) وحدات وجزء أنواع أدوية التدرن المتوفرة في مراكز الرعاية الصحية الأولية و تم تحليل البيانات باستخدام برنامج SPSS النسخة ٢٠ عن طريق البيانات الوصفية من خلال تحديد: التكرارات والنسب المئوية وجدول إحصائي و استدلالي لتحليل البيانات الإحصائية من قبل تطبيق الاختبار كاي– سكوير الذي يستخدم لتحديد الارتباط بين جزئي الدراسة.

النتائج: أظهرت الدراسة إن ما نسبته ٢٢% من الأدوية كان دواء كت الرباعي وكت الثنائي و أظهرت أيضا أن هناك علاقة واضحة بين عدد المرضى الذين يستعملون أدوية التدرن والعلاج الوقائي ايزونازايد.

التوصيات: وبناء على نتائج ألدراسة يوصى بشدة بأن تقوم وزارة الصحة بتوفير الأدوية المضادة للسل على أساس منتظم.

Abstract

Objective: To assess the major anti-tuberculosis drugs available to patients at primary health care centers in Baghdad city.

Methodology: A descriptive cross-sectional study design is carried out in order to achieve the objectives of the study by using the assessment technique in primary health care centers from December 29th, 2014 to July 10 th, 2015. probability sampling is select based on the study design. Eighteen primary health care centers are select according to criteria of sample to the study and for the purpose of the study, is select (6) sectors and (11) Primary Health Care Centers (PHCC) from Baghdad Health Department/Al-Rusafa Directorate and (6) sectors and (7) primary health care centers from Baghdad Health Department/Al- Karkh Directorate in Baghdad city. The data is collect by special questionnaire to obtained general information about primary health care centers (county, Sector, named of primary health care centers, estimated number of population and the number of patients use Tuberculosis drugs available in primary health care centers. Data analysis is done by using program of (SPSS) version 20 , Descriptive data through determination of: Frequencies , Percentages and, Inferential statistical data analysis is done applying Chi –square test for determining the association between the study main domains.

Results: 22% of drugs KIT (HRZE)and KIT (HR) and present highly significant association between number of patients use Tuberculosis drugs and preventive drug (Izenazahid) .
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Recommendations: based on the study's findings, it is highly recommends that the Ministry of Health maintains providing the anti-tuberculosis medications on a regular basis.

Key words: Assessment, Anti-Tuberculosis Drug, Primary Health Care Centers, Baghdad city

Introduction

Tuberculosis is one of the top 10 causes of the global mortality and morbidity. It is a bacterial disease causes by mycobacterium tuberculosis and occasionally by other species of mycobacterium tuberculosis complex that includes: mycobacterium bovis, mycobacterium africanum and mycobacterium canetti [(1)].

Tuberculosis is usually attacks the lungs, but can attack almost any part of the body. Its spreads from person to person through the air [(2)]. It is the leading cause of dead from a curable infectious disease. On the basis of the results of surveys of the prevalence of infection and disease, assessments of the effectiveness of surveillance systems and death registrations, it is estimated that 9.6 million new cases of TB: 5.4 million among men, 3.2 million among women and 1.0 million among children in 2011, less than half of which reports to public health authorities and WHO. [(3)]

The first antibiotic uses to be effective against tuberculosis was in 1943 by doctor Selman Wakesman who discovers streptomycin. Since that time, advancements has make in the treatment of Tuberculosis [(4)]. Tuberculosis occurs in every part of the world. In 2013, the largest number of new TB cases occurred in the South-East Asia and Western Pacific Regions, accounting for 56% of new cases globally [(5)].

The aims of Tuberculosis treatment are: to cure the patient and restore quality of life and productivity, to prevent relapse of TB, to reduce the transmission of TB to others, to prevent the development TB and transmission of drug resistant Tuberculosis [(6)]. Tuberculosis disease can treats by taking several drugs for 6-9) months, of the approvs drugs. Regimens for treating Tuberculosis disease have an initial phase of 2 months, followe by choice of several options for the continuation phase of either 4 or 7 months (total of 6 to 9 months for treatment). It is very important that people who have Tuberculosis disease comply with health care provider's Anti-tuberculosis-relats recommendations the medicine, taking the drugs exactly as prescribs. If they stop taking the drugs too soon, they can become sick again, if they do not take the drugs correctly, the Tuberculosis bacteria that are still alive may become resistant to those drugs. Tuberculosis that is resistant to drugs is harder and more expensive to treat [(7)].

First-line and second-line drugs, minimum inhibitory concentrations and mechanisms of drug resistance are present in anti-tuberculosis drugs are mainly divids into two parts: Part one first line of anti-tuberculosis drugs includes (Isoniazid, Rifampicin, Ethambut, Pyrazinamide and Streptomycin); Part two second line of anti-tuberculosis drugs includes (Fluoroquinolones-Ofloxacin, levofloxacin, Moxifloxacin, Ciprofloxacin, Kanamycin, Amikacin and Capreomycin) [(8)].

Methodology

Samples:

A descriptive cross-sectional study design is carried out in order to achieve the objectives of the study by using the assessment technique in PHCC from December 29th, 2014 to July 10 th, 2015 , The sample is probability sampling (random sample). Content validity for the early develops instrument is determine through a panel of (18) experts who have more than 5 years of experience in their specialties to review the questionnaire clarity, relevance, and adequacy. The determination of reliability of the questionnaire is base on Split-half reliability; the correlation coefficient is (0.859). The data are collect by direct interview using special questionnaire to obtain general information about primary health care centers (county, sector, named of primary health care center, estimated number of population and the number of patients use tuberculosis drugs and drug

available in primary health care centers) The questionnaire format designing according to the expert opinion.

Setting:

Eighteen primary health care centers are select according to the criteria of the sectors and (7) primary health care centers from Baghdad Health Department/Al-Karkh Directorate in Baghdad City , (10%) of the primary health care centers selecte randomly from the total number (142) of primary health care centers.

Statistical analysis:

Data are analyzed by (SPSS) package version 20. **Descriptive statistical data analysis approach** uses to describe the study variables: Frequencies and Percentages. **Inferential statistical data analysis approach** uses by application of the **Chi –square test** this test is use for determining the association between general information and drug available in primary health care centers, testing the significant of the contingency coefficient. for this study the significant P-value Equal or Less than 0.05[9].

study and it's purpose, (6) sectors and (11) primary health care centers are select from Baghdad Health Department/Al-Rusafa Directorate and (6)

Results

Table (1): Distribution of the General Information According to Baghdad Health Department /Al-Rusafa Directorate

Sectors	Primary Health Care Centers	Estimated number of population		number of patients use Tuberculosis drugs	
		F	%	F	%
Al-Baladyat	Al-Baladyat	51435	12.1	6	5
	Waqe'at Al-Tuff	62520	14.3	10	8.3
Al-Sadr city	Ala'a Al-shouely	56276	12.9	21	17.5
	Al-Sadr Al-Sab'a	59138	13.6	24	20
Baghdad Al-jadeda	Al-Dhubatt	19196	4.4	2	1.6
Al-Rusafa	Al-Mustanserya	28510	6.5	2	1.6
	Al-Karrada Al-Aol	45593	10.4	9	7.5
Al-A'adhamiya	Al-A'adhamiya Al-Thani	20712	4.7	18	15
	Al-Dahalek	25882	5.9	6	5
Al-Sha'ab	Al-Sha'ab Al-Aol	45242	10.4	14	11.6
	Ibn-Albalady	19938	4.5	8	6.6
Total	**11**	**434442**	**100**	**120**	**100**

F: Frequency, %: Percentage

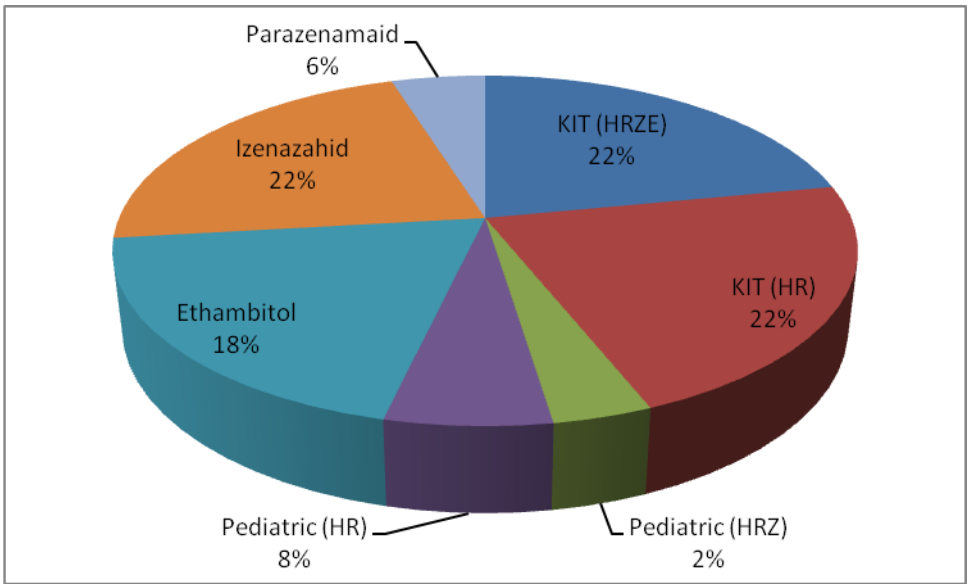
This table shows that (6) sectors in Baghdad Health Department /Al-Rusafa Directorate include (11) primary health care centers. Each primary health care centers serving a number of population depending on the number of estimated population in the centers.

Table (2): Distribution of the General Information According to Baghdad Health Department /Al- Karkh Directorate

Sectors	Primary Health Care Centers	Estimated number of population		number of patients use Tuberculosis drugs	
		F	%	F	%
Al-Adel	Al-Adel	29265	11.8	2	4.6
Al-Amil	Al-Haoura'a	35157	14.2	9	20.9
Al-E'alam	Al-Shabab Al-Namothajy	38657	15.6	12	27.9
Al-Karkh	Al-Dakhilya	32446	7.5	2	4.6
Al-Khadimya	Abd-Alsaheb dekhel	48369	19.5	4	9.3
	Al-Zahra'a Al-Namothajy	38568	15.5	7	16.2
Al-Dora	Al-Seha Al-Ra'aesi	25100	10.1	7	16.2
Total	**7**	**247562**	**100**	**43**	**100**

F: Frequency, %: Percentage

This table shows that (6) sectors in Baghdad Health Department /Al- Karkh Directorate include (7) primary health care centers. Each primary health care centers serving a number of population depending on the number of estimated population in the centers.

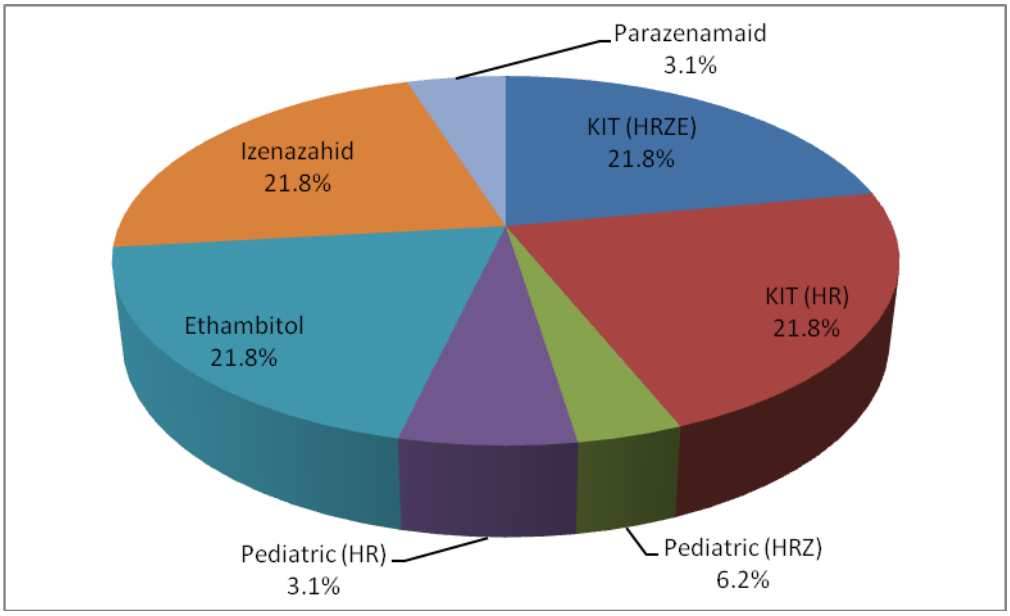


%: Percentages, HRZE: Izenazahid, Rifampicin, Parazenamaid and Ethambitol, HR: Izenazahid and Rifampicin, HRZ: Izenazahid, Rifampicin and Parazenamaid.

Figure (1): Drugs Available in Primary Health Care Centers According to Baghdad Health Department /Al-Rusafa Directorate

This figure shows that type of drugs available in primary health care centers represent(22%,22% and 22%) were KIT (HRZE), KIT (HR) and Izenazahid respectively, while low percentage of drugs available in primary health care centers is (2%) Pediatric

(HRZ). Obtained this percentages from questionnaire format (what medications are available in the pharmacy in PHCC) .



%: Percentages, HRZE: Izenazahid, Rifampicin, Parazenamaid and Ethambitol, HR: Izenazahid and Rifampicin, HRZ: Izenazahid, Rifampicin and Parazenamaid.

Figure (2): Drugs Available in Primary Health Care Centers According to Baghdad Health Department /Al- Karkh Directorate

This figure shows that type of drugs available in primary health care centers represent(21.8%,21.8%,21.8% and 21.8%) were KIT (HRZE), KIT (HR), Ethambitol and Izenazahid respectively, while low percentage of drugs available in pharmacy of primary health care centers is (3.1% and 3.1%) for Pediatric (HR) and Parazenamaid respectively.

Table (3) Association Between General Information and Drug Availability in Primary Health Care Centers

General information / Drugs	County	Sectors	PHCCs	Estimated number of population	number of patients use Tuberculosis drugs
	P-value	P-value	P-value	P-value	P-value
KIT (HRZE)	0.586	0.256	0.323	0.184	**0.015**
KIT (HR)	0.453	0.125	0.213	0.156	**0.032**
Pediatric (HRZ)	0.289	0.156	0.561	0.484	0.243
Pediatric (HR)	0.572	0.535	0.145	0.423	0.518
Ethambitol	0.132	0.345	0.276	0.345	0.582
Izenazahid	0.212	0.176	0.387	0.188	**0.001**
Parazenamaid	0.562	0.376	0.562	0.165	0.186

PHCCs: Primary Health Care Centers, p: probability level, HRZE: Izenazahid, Rifampicin, Parazenamaid and Ethambitol, HR: Izenazahid and Rifampicin, HRZ: Izenazahid, Rifampicin and Parazenamaid.

This table shows that there is highly significant association between number of patients use Tuberculosis drugs and Izenazahid , KIT (HRZE) and KIT (HR), P-value (0.001, 0.015 and 0.032) respectively.

Discussion

1: General Information about Primary Health Care Centers

The findings of the present study, show that (2) county, Baghdad Health Department /Al-Rusafa Directorate and Baghdad Health Department /Al- Karkh Directorate divids to (6) sectors respectively.

Regarding to the primary health care centers, it is notice that (11) primary health care centers of the study sample from Baghdad Health Department /Al-Rusafa Directorate are (7) primary health care centers are from Baghdad Health Department /Al- Karkh Directorate from total the sample (18) primary health care centers. Every primary health care centers serving number of population according to the demographic location. Baghdad Health Department /Al-Rusafa Directorate serving (434442) population while Baghdad Health Department /Al- Karkh Directorate serving (247562) population. Regarding to the number of patients use Tuberculosis drugs, out of (120) patients from Al-Rusafa Directorate are (43) patients from Al-karkh Directorate (Table 1 and 2).

The Ministry of Health achieving the goal of transforming an inefficient, centrally planned and curative care based health service into a new system based on preventive and evidence-based, equitable, high quality primary health care and has been embark upon improving and modernizing its healthcare delivery system[10].

2: Drugs Available in Primary Health Care Centers

The findings reveal that most anti-tuberculosis drugs available in primary health care centers of Baghdad Health Department /Al-Rusafa Directorate represent (22%,22% and 22%) are KIT (HRZE), KIT (HR) and Izenazahid respectively, while (18%, 6% and 8%) are Ethambitol, Parazenamaid and Pediatric (HR) respectively, low percentage (2%) of drugs available in pharmacy of primary health care centers is Pediatric (HRZ). Regarding to the most drugs of anti-tuberculosis available in primary health care centers of Baghdad Health Department /Al-karkh Directorate represent (21.8%,21.8%,21.8% and 21.8%) are KIT (HRZE), KIT (HR), Ethambitol and Izenazahid respectively, while (6.2%) are Pediatric (HRZ), while low percentage (3.1%) of drugs available in pharmacy of pharmacy of is Pediatric (HR) and Parazenamaid respectively(Figure 1 and 2).

First line anti-tuberculosis drugs recommend by WHO are a combination of isoniazid, rifampicin, pyrazinamide, ethambutol, and streptomycin. It is important for clinicians to evaluate a patient's response to treatment to determine the efficacy of the treatment and to identify any adverse reactions. The adverse drug reactions may be mild to severe [11].

CDC: Centers for Disease Control and Prevention
HRZE: Izenazahid, Rifampicin, Parazenamaid and Ethambitol.
HR: Izenazahid and Rifampicin.
HRZ: Izenazahid, Rifampicin and Parazenamaid .

3: Discussion of the Association between General Information and Drug Availability in Primary Health Care Centers

There is highly significant association between number of patients use Tuberculosis drugs and Izenazahid, the patients must take the preventive drug (Izenazahid) whatever, the diagnosis of patient who have Tuberculosis. There is highly significant association between number of patients use Tuberculosis drugs and KIT (HRZE), the most of the patients infect with Tuberculosis diagnose of positive smear sputum needs treat with taking KIT (HRZE) drug. There is significant association between number of patients use Tuberculosis drugs and KIT (HR), Most of the patients diagnose of positive smear sputum but have sensitively from KIT (HRZE) from this reason they need to take KIT (HR) drug (Table 3).

If only one or two of the TB drugs are taken, or the treatment is interrupted or stopped early, then the treatment probably won't work. This is because the TB

bacteria that a patient has, develops resistance to the TB drugs. Not only is the patient then still ill, but to be cured they then have to take drugs for the treatment of drug resistant TB [(12)].

HRZE: Izenazahid, Rifampicin, Parazenamaid and Ethambitol .
HR: Izenazahid and Rifampicin ,

Recommendations:

According to the results of the study, the Recommendations are:

1. Provide the drugs of anti-tuberculosis in all primary health care centers.

2. Training the patient's family member to follow the treatment of anti-tuberculosis drugs giving to patient regularly.

3. Training the drug provider about the type, appropriate dose and duration of drugs.
4. Health education program for patients to increase their awareness about using Tuberculosis drugs correctly and side effects of drugs.

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