Health-related quality of life of tuberculosis Patients in Bagdad and Socio-demographic Factors Associated with Multiple Drug Resistant Tuberculosis (MDR TB)

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Abstract

Background: Tuberculosis is a highly infectious disease that primarily affects the lungs. It can also affect other organs. TB was once called "consumption." It is the world's second-most fatal infectious agent, after HIV/AIDS

Objective: To evaluate the effect of sodium nitrate, vitamin E and vitamin C administration on liver enzymes, alanine transaminase, aspartate transaminase and alkaline phosphatase. This research aimed to study the effect of tuberculosis (TB) on quality (QOl) of life of MDR and non DR TB patients, it also to explore any possible association between getting MDR TB and socio- demographic variables

Materials and Methods: A cross-sectional study was conducted in Chest and Respiratory Diseases Center (CRDC) –Baghdad during 2015. The World Health Organizations Quality of Life Assessment (WHOHQL-BREF) was used to asses QOL of 50 MDR and 50 Non DR sputum positive pulmonary TB patients. Socio-demographic variables were studied. SPSS V. 22, was used in statistical analysis, Chi-square and Mann-Whitney-U tests were used to test significance of differences, $PV \leq 0.05$ was considered significant.

Results: The mean age was 43.46 ± 14.8 and 37 ± 16.16 for MDR-TB and non-DR-TB respectively. The age difference was significant (p=0.048). Males constitute a majority in both groups (DR-TB 64% and non-DR-TB 59%). Smoking was higher in DR-TB than non-DR-TB (57% and 38% respectively) and difference was significant (P =0 .016). Significant differences between DR-TB and non-DR-TB in global QOL, global health, physical, psychological, social and environmental domains (P=0.004, 0.014, 0.001, .0019, 0.001 and 0.001 respectively).

Conclusion: Patients with MDR-TB had lower mean scores than non-DR-TB for overall HRQOL domains. There is association between getting MDR TB and being older in age, lower educational level, smokers and being jobless.

Key worlds: MDR TB, Quality of life, Baghdad, Tuberculosis

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Introduction

During 2013 more than 9 million people got TB, which caused 1.5 million deaths. Estimated number of multidrug-resistant TB was 480000, MDR-TB crises detection, waiting list for treatment and quality of care make effective treatment and control of pulmonary TB to become a significant public health problem [1,2].

Iraq is considered to be a middle burden country with TB, and occupies rank 108 globally and 8 in Eastern Mediterranean region among countries with TB burden size. The estimated incidence of TB in Iraq is 45/100000 [3]. 1n 2014, health authority in Iraq registered 2563 smear positive TB cases all over the country 863 of these cases discovered in Baghdad, 196 were drug resistant [4]. But one study done in Baghdad showed that 17/155(11%) of pulmonary TB were classified as MDR-TB [5]. The Iraqi MOH considered TB as an important problem, and gave TB control high priority [6].

Several problems (social, financial and psychological) affect TB. Patient and not only clinical symptoms, which can extend beyond the   treatment`s duration.   In addition the side effect that may be caused by drugs. The mentioned aspects can cause huge impact on   well-being of the patient in general and these effects may exceed the physical impact of illness, which may lead to long-term disability [7-13]. These negative emotions may lead to reduction anti-tubercular therapy success.   The diagnosis of tuberculosis has well known social impact. Researchers found that it was difficult to arrange marriage for boys if he got TB. And more difficult if the engaged person was girls, suffering from this disease [14, 18]. stigmatization may push TB. Patients to provide wrong addresses at   centers,   in addition to that TB Patients were found to be afraid of informing their employers about their diagnosis in order not to lose job or wages [19].Women participation is lessened in household activities and they didn't seek treatment   until the disease is more advanced and more difficult to treat [13,20]. For better assessment of   overall effect of TB on health status and his well-being perception , patient in addition to radiological and bacteriological assessments, patient`s QOL had to be assessed [21].

Tuberculosis patient`s health related quality of life (HRQOL) has been studied using   WHOQOL-BREF, which measure QOL in   four domains,   to assess the impact of TB on the QOL and to have an in-depth explore the effect of disease on various aspects   of patient's health [22]. This could help   the medical and paramedical persons to devise relevant interventions to improve.

Previous study found that Tuberculosis in general got negative influence upon patients quality of life domains [23]. Data about the effects of MDR-TB on QOL, and possible association   between   socio-demographic factors and getting MDR TB in Iraq are not available

The study aimed to compare QOL of MDR-TB patients with TB patients without drug resistance and explore any possible association between getting MDR TB and socio-demographic variables.

Materials and Methods
Experimental design

This comparative cross-sectional study was conducted in chest and respiratory diseases centre (CRDC) in Baghdad-Iraq, collection of data extended for 60 days (1st March till 30th April 2015).

One hundred sputum positive pulmonary TB patients; 50 of them where drug resistance,   according to the test done in the referral laboratory for TB. In CRDC, and 50 with no drug resistance. Patients with DM, bronchial asthma, chronic renal diseases, chronic cardiopulmonary diseases or any other chronic condition that may affect QOL, were excluded from the study.

A   data collection sheet which included patients' demographic variables such as age, gender, marital status, level of education, work status, and occupation. All these variables were extracted through direct

interview done by the researcher with each patient. Then the World Health Organization Quality Of Life survey (WHOQOL-BREF) was used to measure the quality of life of each patient [22].

The WHOQOL-BREF consisted of four domains covering twenty-four items, in addition to two global items on the overall quality of life and general health. For each item a Likert scale that ranged from 5 if the response was "very bad, bad, fair, good, very good).

The scoring was reversed for negative items so that the higher the score the better the quality of life. The four domains were calculated as the sum of seven items for physical, six for psychological, three for social and eight for environmental. The raw score of each domain was then transformed into a standardized score of 0–100 for the purpose of uniformity of scores.

Ethical approval

Formal approval from the Ministry of Health and the scientific and ethical unite in Al-kindy College of Medicine was taken before conduction of the research. Confidentiality of the data collected was assured, verbal consents were approved from each patients at the beginning of the interview.

Statistical analysis

Statistical Package for Social Sciences (SPSS) version 22 was used for data entry and analysis and a descriptive statistical analysis was done. Continuous data were presented as mean and standard deviation (SD) and the categorical data were presented as number (frequency) and percentage by using cross tabulation. A test for Normality was conducted to find out if the distribution of QOL data was normal. Since the Shapiro-Wilk tests revealed that the distribution of the data was not normal ($p < .05$) , Chi square and Mann-Whitney-U tests were performed to test the probability of significant differences among the patients' QOL based on the status of patients' drug resistance. A P-value of less or equal to .05 was taken as the cut-off value for statistical significance. Same method used by Al-Qahtani *et al* in Saudia Arabia 2014 [26].

Results

A total of 100 TB patients were included in this study, 50 MDR and 50 Non DR patients. Table 1 showed that the mean age range was 43.46 ± 14.29 and 37.36 ± 16.156 for DR-TB patients and non-DR-TB patients respectively, the difference was significant (P=0.048).

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Table (1): Distribution of studied MDR and non MDR TB patients according to ages in years

Characteristics	N	Minimum	Maximum	Mean	Std. Dev.	P value
MDR	50	18	65	43.46	14.290	
Non MDR	50	19	71	37.36	16.156	0.048

Table 2 revealed that males formed a majority in both groups (DR-TB 66% and non-DR-TB 60%). Regarding the status of smoking, frequency was higher in DR-TB cases than non-DR (44% and 32% respectively), and the difference was statistically significant (P = .023). Level of

education was found to significantly lower among DR than Non DR patients, (P = .045). Jobless patients were found more among DR than Non DR patients (pv= 0.045).

Table (2): Demographic characteristics of   DR-TB and non-DR-TB patients.

Characteristics		MDR TB 50 cases	Non M DR TB 50 cases	P value
Age gp.	<40 yrs	18	28	0.045
	40 yrs and above	32	22	
Gender	Male	33	30	0.534
	Female	17	20	
Marital status	Married	13	6	0.074
	Not married	37	44	
Level of education	Illiterate/intermediate	39	30	0.045
	≥Secondary	11	20	
Occupation	Job	18	18	0.045
	Jobless	32	22	
Property	House owner	22	25	0.548
	No	28	25	
Residency	Rural	5	7	0.538
	Urban	45	43	
	Yes	22	16	
Smoking	No	28	34	0023

Figures 1 and 2, showed that both general health and overall QOL were significantly worse among MDR TB patients, P values were 0.015 and 0.004 respectively.
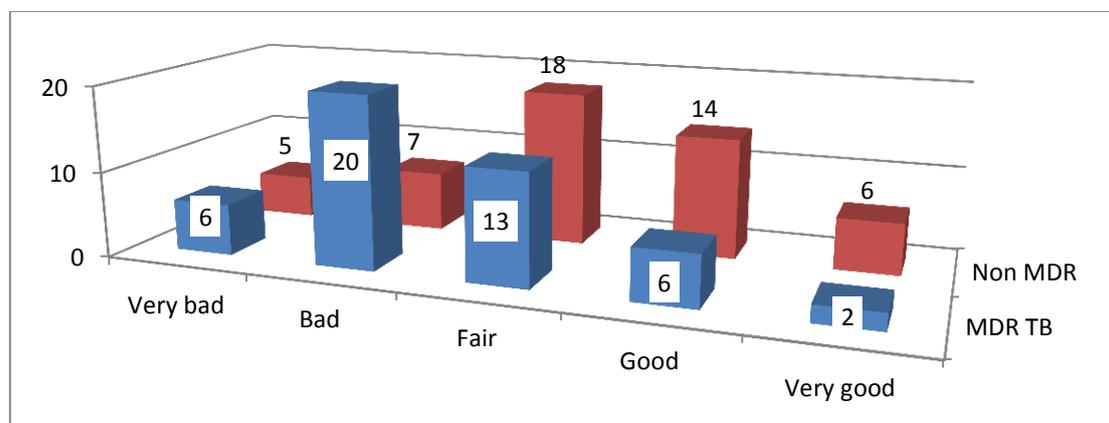

Figure (1): Distribution of studied cases according to general health condition and drug resistance status
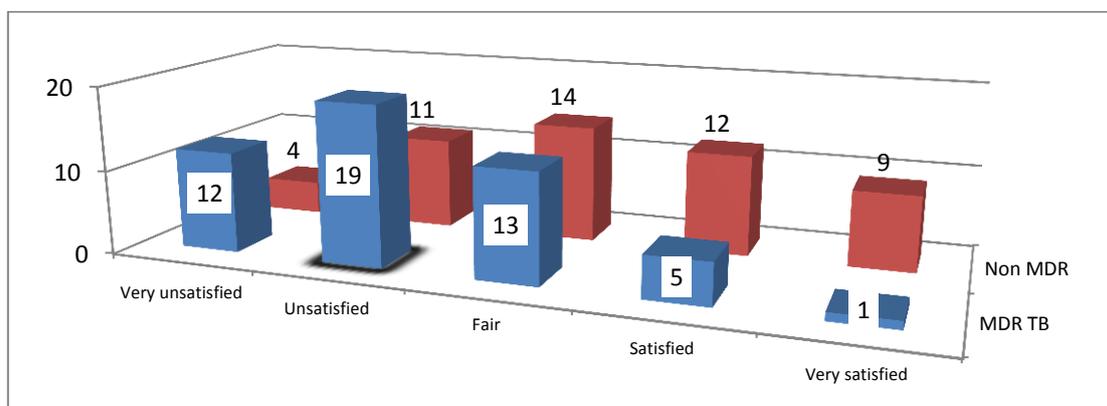
Figure (2): Patients satisfaction in their general QOL according to drug resistance status

The social and environmental domains were found to be severely affected among MDR patients followed by physical and then psychological domains, but QOL of all domains were affected significantly more among MDR than Non MDR patients as shown in table 3.

Table (3): Comparison of the Quality of Life domains between DR-TB and non-DR-TB patients.

Characteristics		Physical Domain	Psycholg. Domain	Social Domain	Environmental D.
MDR- State	Minimum	20	26.67	20	25.00
	Maximum	94.29	90.00	80	87.50
	Mean	50.11	51.47	38.27	42.7
	SD	14.97	15.05	13.92	11.74
	Median	48.5714	53.33	33.33	40.
Non- MDR. State	Minimum	20	30.	20	30
	Maximum	77.14	93.33	86.67	77.50
	Mean	61.09	57.9	54.40	51.35
	SD	10.98	14.46	15.14	11.15
	Median	62.86	56.67	53.3	50.00
Mann Whitney test p value		<0.001	0.019	<0.001	<0.001

Discussion

The analysis revealed that low level of education and joblessness made patients more liable for MDR . these results are similar to what had been found by Dhuria [24] and Saira Zai [25]. These can be attributed to lack of health education and poverty which may lead to malnutrition and decrease immunity. Smokers and old age patients also associated with getting MDR TB ,same results noticed by Faisal et al in Saudi Arabia.(26) Smoking made patients more liable to get MDR TB through destruction of respiratory immune system and old age patients seemed to be more liable

to get MDR TB because of chance recurrent TB infection with advancing age .The results of this study suggest that the WHQOL-BREF could be used as suitable tool in the assessment of the QOL of TB patients whether drug resistant or drug sensitive.

Comparisons between drug resistant and drug sensitive TB patients depending on their QOL domains' scores, showed that scores of the overall quality of life, global health, physical, psychological, social and environmental domains were significantly higher for drug sensitive than the drud resistant TB patients (P < .05). These results agrees with Dhuria [24], Al-Qahtani [26] and Unalan [27] studies, and this can be attributed to the complex drugs and longer period of treatment that should be used for MDR-TB specially injectable medications. The complex regimens are usually associated with obvious adverse effects, and perhaps unsurprising that MDR-TB is associated with high rates of psychological co morbidity like anxiety and depression. Furthermore, social isolation may be resulted from hospitalization, stigma, and difficulties in maintaining family life. In addition to the larger number of medication used to manage MDR-TB, the delivery of services has a major impact on outcome and hence quality of life. The current health systems followed in Iraq enforced MDR TB patients to travel long distances to take their anti TB drugs from consultation clinics in Baghdad and other governorate unlike non DR patients that received their drugs from primary health care centers near their homes.

As it was shown in this study, patients with drug resistant tuberculosis had significantly lower mean rank scores than patients who are non-drug resistant for overall QOL, physical, psychological, social and environmental domains. For the drug resistant patients, the worst affected domain was social relationship followed by the environmental domain, while for the non-drug resistant patients the worst affected was the environmental followed by the social relationship domain. In general, the results of this study showed that being older in age and lower in educational level is more associated with DR TB .

Based on these results, greater attention to the quality of life of TB patients are recommended, beside educational materials and information for dissemination by the media should be developed to help raise public awareness of the prevention and control of TB.

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