Knowledge about Osteoporosis among Primary Health Care Physicians in Baghdad

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ABSTRACT:

BACK GROUND:

Osteoporosis (OP) is an important health, economic and social matter, which affects a major part of the population, therefore attentiveness among primary health care physicians is crucial for early detection and appropriate treatment.

OBJECTIVE:

The study was conducted to assess the knowledge of primary health care physicians in Baghdad regarding different aspects of Osteoporosis as well as to identify the impact of some socio demographic and qualification characteristic of the physicians upon their knowledge.

METHOD:

Cross sectional study was carried out in 30 primary health care centers in Baghdad for the period from 1st of February to end of May 2019.The study sample enclosed primary health care physicians working in the selected centers during the study period. Self-administered questionnaire was used for data collection. The questionnaire encompassed five domains to assess different aspect of OP, in addition the collected data covered some characteristics of physicians.

RESULTS:

The result showed that out of 180 physicians enrolled in the study giving an overall response rate of 81.8%., 97.8% of them had good overall knowledge on OP, and the mean score of the overall knowledge was 35.74±6.13 with range of (21-46). Highest rates (97.2%, 95%) of good knowledge were documented for domains two and one which recognized the knowledge on risk factors and general knowledge of physicians regarding OP respectively. While the least rate of good knowledge was reported in domain four that tested the knowledge of physicians regarding treatment options (76.7%). Better level of knowledge was accomplished by primary health care physicians belong to age group less than 45 years old as well as for those with less years of experience since graduation, the physician's qualifications and specialties did not illustrate statistically significant influence on the level of knowledge.

CONCLUSION:

Despite very high-ranking level of knowledge of physicians in the present study. yet, there is still a need for continuous medical education and training of primary health care physicians to expand their knowledge as well as their skills in management of OP.

KEYWORDS: Knowledge, Osteoporosis, Physicians, Baghdad.

INTRODUCTION:

Osteoporosis (OP) is "a skeletal disorder characterized by compromised bone strength, leading to an increased risk of fracture [(1).] WHO (World Health Organization) defines OP as bone mineral density of 2.5 standard deviations or more below the peak bone mass as measured by dual energy X-ray absorptiometry (DEXA). [(2)]

The prevalence of OP is growing progressively and becoming a major public health problem with the universal increasing in life expectancy; more rapidly in the developing countries [(3)]

OP is a progressive chronic health problem that leads to additional mortality and morbidity. It has been estimated that the one-year mortality after the osteoporotic hip fracture to be about 12.2% with a high mortality found in men compared to women 15.4 %, 11.1% correspondingly [(4,5)].

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Primary health care physicians are the first line of contact with the community, therefore they have significant role to evaluate risk factors and recommend preventive measures as well as they play an active role in the diagnosis, care, and follow-up of patients with OP [6]

Many healthcare professionals do not appreciate the extent of the problem of OP or the ways in which bone disease can be prevented and treated. One of the common fallacies is that OP is an unavoidable part of aging and that it is limited to older women [7].

The lack of knowledge about this disease is considered as a significant barrier to appropriate risks identification and management of this common health problem. Therefore, ample OP knowledge by primary health care physicians is of high importance to ensure that they have the ability and skills to effectively treat individuals with this disease [8, 9].

The study was performed to assess the knowledge of primary health care physicians regarding different aspects of Osteoporosis in Baghdad.

MATERIALS AND METHOD:

Cross sectional study with analytic element was conducted in thirty primary health care centers (PHCCs) in Baghdad from the two health Directorates (Al-Karkh and Al-Rusafa) for the period from 1 of February to end of May 2019. A convenient non- probability sampling technique had been used to select the PHCCs. Study population comprised primary health care physicians working in selected primary health centers during the study period.

A self-administered questionnaire was utilized for data collection. The questionnaire encompassed two parts:

Part one: covers socio demographic and practice profile of the study participants.

Part two: This part comprised five domains with 47 questions to assess the knowledge of primary health care physicians about various aspects of OP.

For each question three possibilities were given: Yes, No, and "Do not know" choices. The latter choice was designed to avoid guessing.

A correct answer received one mark, while incorrect answer or don't know scored zero.

Following completing the questionnaires, scoring of the responses was performed. The total knowledge score of the respondent could range from 0 to47. Scores of less than 24 were considered poor level of knowledge, and scores 24 and more were considered good level of knowledge. [10]. Score of each domain was also calculated and divided into two level of knowledge (good and poor).

For domain one, poor level comprised score of less than six and good level if the score was six or more. Regarding domain two, score less than seven considered as poor level of knowledge and good level for score seven and more, while in domain three score less than five was considered as poor level and score of five and more was good level. Moreover, scores for domain four and five were as follows; less than three, three and more scores and less than four, four and more for poor and good levels respectively.

Data analysis:

Analysis of data was carried out using the available statistical package of SPSS-25 (Statistical Packages for Social Sciences- version 25). Data were presented in simple measures of frequency, percentage, mean, standard deviation, and range. Chi –square test was used to evaluate the association between the different study variables and the level of knowledge. A p-value of less than or equal to 0.05 was considered statistically significant.

RESULTS:

Out of 220primary health care physicians who were requested to participate in the study, a total of 180 from 30 PHCCs had joined the present study, giving an overall response rate of 81.8%. Distribution of study group according to socio-demographic and qualifications characteristics presented in table-1.

Table -2 demonstrated the physicians' knowledge responses regarding general knowledge about OP.

Almost all physicians (99.4%) were correctly answered the definition of OP, 152 (84.4%) of them accurately recognized that OP is a condition were excessive and prolonged deficiencies in vitamin D soften and weaken the bones. It is remarkable that only 89(49.4%) of study participants had correct knowledge regarding pain symptom in individual with OP.

Table 1: Distribution of study group according to socio-demographic and qualifications characteristics.

Socio-demographic variables		No(n=180)	%
Age (years)	30-34	70	38.9
	35-39	46	25.6
	40-44	22	12.2
	45-49	11	6.1
	=>50y	31	17.2
	Mean± SD (Range)	38.5±8.2 (30-60)	
Gender	Male	37	20.6
	Female	143	79.4
Years of work since graduation (years)	1-9	61	33.9
	10-19	69	38.3
	20-29	39	21.7
	=>30y	11	6.1
	Mean±SD (Range)	14.4±7.8 (5-35)	
Specialty	Family medicine specialist	67	37.2
	Practitioner in FM	55	30.6
	Other specialist *.	25	13.9
	General practitioner	33	18.3
Qualification	Board	60	33.3
	Diploma	7	5.0
	Bachelor of medicine	113	61.7
*other specialist (pediatric, gynecological, radiology)		180	

Table 2: Physicians answers to questions on general knowledge about OP.

Domain I: General knowledge about osteoporosis (N=180)	Yes		No		Don't know	
	No.	%	No.	%	No.	%
1. Osteoporosis is a condition of fragile bone with an increased susceptibility to fracture	179	99.4	1	0.6	-	-
2.OP is a condition where excessive and prolonged deficiencies in vitamin D soften and weaken the bones	152	84.4	24	13.3	4	2.2
3.OP and Osteomalcia are different conditions	170	94.4	9	5.0	1	0.6
4.OP is female disease only	7	3.9	170	94.4	3	1.7
5.OP can be secondary to some diseases	164	91.1	9	5.0	7	3.9
6.Pain is common in individual with OP	78	43.3	89	49.4	13	7.2
7.Signs or symptom of OP can include: Kyphosis	101	56.1	54	30.0	25	13.9
8.Signs or symptom of OP can include: Loss of height	126	70.0	48	26.7	6	3.3
9.Signs or symptom of OP can include; Fatigue	155	86.1	14	7.8	11	6.1
10.If person have OP, he become shorter due to bent spine	122	67.8	36	20.0	22	12.2
11.OP is financial issue for patient and community	158	87.8	12	6.7	10	5.6
mean score for general knowledge was 8.81±1.85. Minimum score obtained was 4 , maximum score obtained was 11.						

Accordingly, the result in figure- 1 verified that the majority of the physician's 171(95%) enrolled in the study had good knowledge regarding general knowledge about OP.

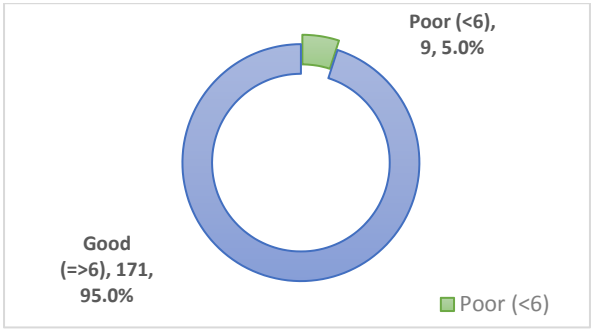

Figure 1: The distribution of physicians according to their level of knowledge on general knowledge of OP.

Table -3 illustrated the participants' knowledge about OP risk factors, the rate of correct answers among physicians ranged between 60.6% to 98.3%. Regarding mean score for risk factors for OP was 11.43±2.29, while the range was (6-14).

Table 3: Physicians answers to the questions about risk factor for OP.

Domain II: Risk factors for osteoporosis (N=180)	Yes		No		Don't know	
	No.	%	No.	%	No.	%
1.Aging	174	96.7	6	3.3	-	-
2.Early Menopause	173	96.1	6	3.3	1	0.6
3.Lack of exercise	143	79.4	32	17.8	5	2.8
4.Low BMI	110	61.1	60	33.3	10	5.6
5.Obesity	61	33.9	111	61.7	8	4.4
6.Family history of OP	161	89.4	16	8.9	3	1.7
7.Personal and family history of fragility fractures	147	81.7	23	12.8	10	5.6
8.Excessive alcohol intake	134	74.4	24	13.3	22	12.2
9.Smoking	147	81.7	18	10.0	15	8.3
10.Low vitamin D intake	164	91.1	14	7.8	2	1.1
11.Low calcium intake	172	95.6	5	2.8	3	1.7
12.Anticonvulsant drug	135	75.0	18	10.0	27	15.0
13.Prolong use Corticosteroid	177	98.3	1	0.6	2	1.1
14.Prolong use Antacids contains Aluminum	109	60.6	24	13.3	47	26.1

Almost all study participants (97.2%) had good knowledge in regard to OP risk factors. Figure- 2.

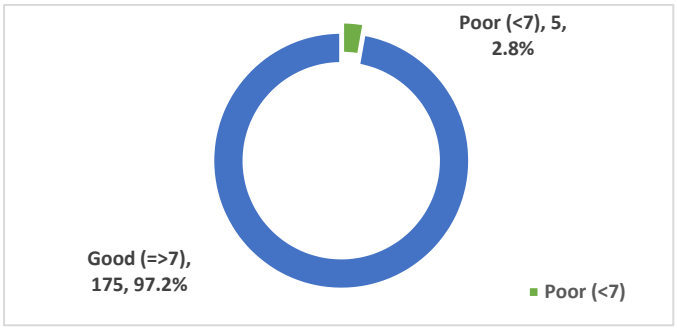

Figure 2: The distribution of physicians according to their level of knowledge about risk factor of Osteoporosis.

Out of 180 primary health care physicians, 87.8% of them mindful that DEXA is a diagnostic means for op. Furthermore 88% of the study group were aware that DEXA is indicated for Postmenopausal women >65 years and 95% of them correctly answer that DEXA is important screening tool for patients with long steroid use. Table-4. Mean knowledge score of study group regarding diagnosis was 6.23±1.70 with range of (0-9).

Table 4: physicians' answers to the questions on methods used in the diagnosis of

Domain III-Method used in the diagnosis of osteoporosis (N=180)	Yes		No		Don't know	
	No.	%	No.	%	No.	%
Plain X ray (No)	126	70.0	48	26.7	6	3.3
Bone profile (Alkaline phosphatase, Calcium, phosphate) (No)	96	53.3	73	40.6	11	6.1
25-hydroxy vitamin D, 1,25-dihydroxyvitamin D3 (No)	89	49.4	75	41.7	16	8.9
DEXA (dual energy x-ray absorptiometry)	158	87.8	5	2.8	17	9.4
DEXA (dual energy x-ray absorptiometry) are indicated for; Postmenopausal>65 years	159	88.3	10	5.6	11	6.1
Female with multi risk factor	169	93.9	3	1.7	8	4.4
Patient on steroid for long time	171	95.0	7	3.9	2	1.1
Body aches (No)	58	32.2	107	59.4	15	8.3
Fragility fracture	162	90.0	9	5.0	9	5.0

Osteoporosis

Substantial proportion of physicians (86.7%) enrolled in the study had good knowledge in reverence to diagnosis of OP.

The knowledge of the study group regarding treatment options of OP presented in table-5. More than half (53.9%) of the respondents falsely believed that there are effective treatments available for OP. Mean score of the study group regarding treatment option was 3.09±1.12, the range was (0-5).

Table 5: Physicians' answers to the questions on treatment option of Osteoporosis.

Domaine IV-The treatment options of osteoporosis (N =180)	Yes		No		Don't know	
	No.	%	No.	%	No.	%
1-There are no effective treatments for OP available	72	40.0	97	53.9	11	6.1
2-OP can be treated by Calcium and Vitamin D	146	81.1	30	16.7	4	2.2
3-OP can be treated by Bisphosphonate	147	81.7	12	6.7	21	11.7
4-OP can be treated by Hormonal Replacement Therapy	138	76.7	26	14.4	16	8.9
5-Management of high-risk patients of OP in PHCCs are:						
Just refer	15	8.3				
Give general advice only	8	4.4				
Start calcium + Vitamin. D	5	2.8				
Start calcium + Vitamin. D and refer (correct)	145	80.6				
Start calcium+ Vitamin. D + antiresorptive with and without DEXA	7	3.9				

The level of knowledge of the physician's regarding treatment option of OP was good in 76.7% of them.

Relating to the preventive measures of OP; the majority of the study group (93.3%, 95.6%) correctly considered that sun light exposure and physical activity are among preventive measures of OP respectively. But the Knowledge was deficient in regard to RDA of calcium and Vitamin D, as it was correctly acknowledged only by (51.1% and 30.6%) of the studied physicians respectively. mean score of the study group regarding preventive measures was 6.18±1.41, the range was (2-8). Table-6.

Table 6: Physicians' answers to the questions on Preventive measures for Osteoporosis.

Domain V-Preventive measures for osteoporosis: N =180	Yes		No		Don't know	
	No.	%	No.	%	No.	%
Exposure to sun light is necessary	168	93.3	12	6.7	-	-
Physical activity is beneficial for osteoporosis	172	95.6	5	2.8	3	1.7
Calcium supplements and Vitamin. D can prevent OP	156	86.7	19	10.6	5	2.8
Taking calcium supplement is essential when the diet have inadequate amount of calcium	167	92.8	7	3.9	6	3.3
The recommended dosage of calcium & Vitamin. D for postmenopausal women should be determined by a patient's dietary habits & lifestyle	151	83.9	18	10.0	11	6.1
The RDA of calcium for an adult?						
1000-1200 mg daily (correct)	92	51.1				
600-800 mg daily	34	18.9				
1400-1600 mg daily	29	16.1				
Don't know	25	13.9				
The RDA of Vitamin. D for an adult?						
600-800 IU (correct)	55	30.6				
400-800 IU	67	37.2				
800-1000 IU	37	20.6				
Don't know	21	11.7				
The best sources of calcium?						
Yogurt (correct)	151	83.9				
Strawberries	5	2.8				
Crapes	18	10.0				
Don't know	6	3.3				

The level of knowledge of study group regarding preventive measures of OP, where the majority (94.4%) of them had good knowledge.

The overall level of knowledge of physicians regarding different aspects of OP was good for 176 (97.8%) of physicians. Figure-6. The results showed that the mean score of the overall knowledge was 35.74±6.13, with range of (21-46).

Table-7 illustrated the relation between knowledge levels and some socio-demographic and qualifications characteristics of physicians. The age of physicians failed to reveal a statistically significant association with knowledge level. According to the results, being female publicized statistically significant impact on the level of knowledge. The length of time since graduation, in addition to the physician's specialty and qualification all revealed no statistically significant consequence on level of knowledge regarding OP.

Table 7: The distribution of study group according to the level of Osteoporosis knowledge and socio-demographic characteristics.

Socio-demographic characteristics (n=180)		Level of OP knowledge				P value
		Poor (<24)		Good (=>24)		
		No.	%	No.	%	
Age (years)	30-34	1	1.4	69	89.6	0.4054
	35-39	1	2.2	45	97.8	
	40-44	0		20	100	
	45-49	1	9.1	10	90.9	
	=>50y	1	3.2	30	96.8	
Gender	Male	3	8.1	34	91.9	0.006*
	Female	1	0.6	142	99.3	
Years of work since graduation (years)	1-9	1	1.6	60	98.4	0.4411
	10-19	1	1.4	68	98.6	
	20-29	1	2.6	38	97.4	
	=>30y	1	9.1	10	90.9	
Specialty	FM specialists	1	1.5	66	98.5	0.8806
	Practitioner in FM	1	1.8	54	98.2	
	Other specialist	1	4	24	96	
	General practitioner	1	3.08	32	96.7	
Qualification	Board	1	1.7	59	98.3	0.0871
	Diploma	1	14.3	6	85.7	
	Bachelor	2	1.8	111	98.2	
*Significant difference between proportions using Pearson Chi-square test at 0.05 level. *0ther specialists (gynecological, pediatric ,,,)						

DISCUSSION:

The results obtained from the present study revealed that almost all study participants had good knowledge about different aspects of OP. This finding is like what was found in studies from Saudi Arabia 90%, 92% [10, 11], Germany 83% [12]) and Korea 88 %[13]

The prominent good level of knowledge might ascribe to the fact that Op is serious metabolic bone disorder and a threat to the health of the human population. Moreover, it is considered as major contributors of morbidity and mortality among elderly people [14] .

The results of current study exhibited that the majority of participants were mindful about important areas of OP. On the other hand, the results pointed out that study group had some gaps in knowledge in regard to signs and symptoms of OP.

Comparable results were reported by previous studies conducted in Saudi Arabia [10] and Germany [12]. These findings can be explained by the fact that OP is silent disease where the bone loss is gradual and painless and usually no symptoms are developed until the evidence of fracture is appeared [15].

The study participants were momentously aware about the foremost risk factors of OP. These findings were documented in previous studies carried out in Saudi Arabia [11], UAE [16], Lebanon [17], which demonstrated that primary health care physicians had good levels of knowledge on OP related risk factors.

Good knowledge level regarding methods used in diagnosis of OP was obtained by the majority of the study group. As the physicians enrolled in the current study were aware of the importance

of DEXA as a diagnostic tool for OP. This would bring in the attention of the health care decision makers to make the DEXA machine more accessible to the primary health care physicians at some hospitals. This may enhance the standard care of OP and consequently result in long-term important savings to patients and health care system.

Adequate knowledge about diagnostic methods for OP was also revealed by previous study conducted in Saudi Arabia [11].

The result showed that the respondents had a comprehensive knowledge on treatment options of OP. This finding was in contrast with results of previous studies from Saudi Arabia [10], UAE [16], and India [18] which recognized suboptimal level of knowledge regarding treatment of OP. This discrepancy could be explained by that different approaches were used to assess level of knowledge in regard to treatment choices in different studies [10].

knowledge on preventive measures for OP was good for (94.4%) of study participants, where the majority of study group reported that sun light exposure and physical activity can prevent OP, this results in agreement with previous studies from Saudi Arabia [11], Lebanon [17] and Spain [19], which considered physical activity and sun exposure are vital issues in preventing OP.

The age and years of experience revealed no statistically significant association on the level of knowledge. Although better level of knowledge was observed among physicians who were aged less than 45 years as well as among those with less years of experience. These findings were also reported in studies conducted in Saudi Arabia [10], India [18] and Spain [19], which stated that younger and less experienced physicians showed better knowledge with more up-to-date information regarding the disease. This finding might highlight the contemporary emphasis on OP in medical education [18].

The gender of the physicians showed a significant association on the knowledge level with the later tended to rise with being female. This association could be attributed to that OP is an increasing fear among females now days as the number of cases is on increasing, and may reflect strong conviction of female physicians who are themselves vulnerable to a higher risk of the disease [20]. On the same line, studies conducted in Germany [12], and UK [21] concluded that female physicians had greater awareness in regard to OP.

According to the results, no significant difference was established between different specialties and qualifications in relation to level of knowledge.

These findings were in parallel with the results from previous studies conducted in Saudi Arabia [10] and India [18] which declared that the degree of knowledge among the different health professionals' subgroups showed no significant differences.

The probable explanation to this could be linked to that the topic of OP might give less importance in medical curriculum during post graduate training. [18].

CONCLUSION:

The primary health care physicians have considerable knowledge on OP, as most of the physicians achieved good scores on different issues of OP

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