Original Article

PHYSICIANS' KNOWLEDGE ABOUT DRUG PRESCRIBING FOR THE ELDERLY IN PHC CENTERS IN BAGHDAD

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ABSTRACT

Introduction: Aging is often associated with multimorbidity, polypharmacy and many side effects. Beers Criteria is the best known and most commonly used to identify potentially impropriate medicines in the elderly. **Objectives:** To assess the knowledge of Iraqi physicians about beers criteria and appropriate prescribing of medications for the elderly. **Methods:** A cross-sectional study was conducted in 20 primary health care centers on both sides of Baghdad (Al-Karkh and Al-Russafa), included 140 physicians. Data was collected using a self-administered questionnaire that addressed ten instances of potentially inappropriate prescribing in the form of either a dose reduction or a discontinuation of the targeted medication. Respondents were classified to poor (score <5), average (score 5–6), and good (score 7–10). Chi-square was used to determine the level of significance between the Beer score and the demographical characteristics of the sample. **Results:** Female physicians constituted 95 (67.8%) of the studied sample. More than half 80 (57.2 %) of the physicians in primary health care centers had board certificates. More than half 78 (55.7 %) of physicians felt confident in prescribing for the elderly. Only 18 (12.9%) knew what is Beer's criteria. About one quarter 32(23.2%) had a good Beer' criteria score. The most commonly prescribed potentially inappropriate medicines identified in the study included NSAIDs like naproxen, diclofenac, and indomethacin. The study showed a significant association between high scores of Beer's criteria and the medical degree (p-value<0.001). **Conclusion:** Increasing awareness through workshops and seminars would improve the health professionals' use of Beers' criteria. Activating the role of geriatric sub-specialty in primary health care centers is needed.

KEYWORDS: Beer's criteria, PHCC doctors, Knowledge of physicians, potentially impropriate medicines, geriatrics.

INTRODUCTION

Aging is often associated with multi morbidity, the co-occurrence of two or more chronic diseases, that increases with older age and is prevalent in 77% of adults aged 65 and older. These diseases are managed by prescribing a combination of medications believed to be appropriate for each disease, which frequently results in polypharmacy. According to the American National Health and Nutrition Examination Survey, 39% of older adults aged 65 and older concomitantly used five or more medications.[1,2] Older adults are more prone to adverse effects of medications due to their decreased physiological reserves, the negative effects of age-related comorbidities, increased vulnerability to geriatric syndrome, and higher number of drug use.[3] The Beers Criteria for Potentially Inappropriate Medication Use in Older Adults, commonly referred to as the Beers List, is basically a list of medications that should be avoided or used with caution in adults 65 years or older. It was originally published in 1991 and has been updated every 3 years since 2011, most recently in January 2019.[4] While other lists of medications that may be challenging in elderly patients have been published, the Beers Criteria is the best known and most commonly used as prescribing for the elderly is not an easy task, first its due to altered pharmacokinetics, pharmaco-dynamics, and age-related changes in body composition and physiology. The elderly group is considered the highest consumers of medicines and prescribed drugs compared to other age

categories.[5] Thus, the importance of the detection of inappropriate prescribing is more pronounced considering the population aging. It is predicted that by 2020 the world will have 1 billion habitants older than 60 years of age, representing 22% of the global population.[5] One of the most important concerns is that prescribing inappropriate medications for the elderly would result in the wastage of health system resources and adds adverse drug reactions including mortality and added morbidity. These medications can cause falls, fractures, delirium, and other preventable adverse drug events.[5,6] On the other hand, physicians might undergo certain hurdles in prescribing for geriatric patients including multimorbidity, potential interactions between diseases and medications, also polypharmacy, which increases the difficulty in rationalizing and deprescribing medications. In addition, there is a struggle in distinguishing between new complaints and medication side effects.[7] The primary objective of this study was to assess the knowledge of Iraqi physicians working in PHC centers about the appropriate prescribing of medications for the elderly. Secondary objectives included familiarity with screening tools for inappropriate medications and identification of barriers limiting appropriate prescription for the elderly.

METHODS

Design of the setting and the study: A cross-sectional observational questionnaire-based research was carried out in twenty primary health care centres on both sides of Baghdad (Al-Karkh and Al-Russafa). Ethical considerations: The Research and Ethics Committee provided ethical permissions, in addition to verbal agreement to participate in the present research. All doctors (General, Family, and Consultants) practising in the 20 primary health care centres who agreed to participate in the research were enrolled. Except for those who refused to participate, we did not omit any doctors. Data were obtained from primary health care centre (PHCC) doctors three days a week for three hours

each day. A total of 280 doctors were involved in the study. Data gathering: The English-language self-administered questionnaire was derived from a similar research performed among primary care doctors in India.[8] The questionnaire covered 10 examples of possibly improper prescription in the form of either a dosage decrease or a drug withdrawal. A pilot research was conducted to assess the comprehension of questions, the ease of interpretation, and the time required to complete them. The pilot research findings allowed for additional refining to develop the finalised intervention of academic detailing. The questionnaire has a time limit of 30 minutes to be completed. The questionnaire was divided into two sections: bio-demographic information, prescription experience for the elderly, and respondents' perceptions of variables influencing proper prescribing for the elderly. The second section consisted of 10 clinical vignettes regarding pharmaceutical usage in the elderly presented as best option multiple choice questions with a score of 1 and 0 assigned for accurate and incorrect answers, respectively. The vignettes presented treatment difficulties in the central nervous, endocrine, musculoskeletal, and cardiovascular systems. Respondent knowledge was rated as (total score more than 10): low (scoring >5), medium (score 5-6), and excellent (score 7-10). Statistical evaluation: IBM SPSS version 19 was used to code, input, and analyse data. For categorical data, frequency and percentage were used to summarise, whereas mean and standard deviations were utilised for numerical variables. The Chi-square test was performed to establish the degree of significance between the beer score and the sample's demographics. P values of 0.05 or below were deemed significant.

RESULTS

Female physicians constituted 95 (67.8 %) of the studied sample, and the remaining were males 45 (32.2 %). Table (1) demonstrates the demographic characteristic of the studied sample. More than half 80 (57.2 %) of the PHCC physicians were board-certified doctors

Table 1: The distribution of the sample by their characteristics (n=140)

Variables		Frequency	Percentage
Gender	Female	95	67.8
	Male	45	32.2
Degree	Bachelor	26	18.5
	Diploma	22	15.7
	Master	12	8.6
	Board	80	57.2
Total		140	100

Thirty percent of doctors had 5-10 years of experience, 68 (48.6 %) had more than ten years of medical practice. Table (2) illustrates the experience in medical practice by the sample. Around 64 (45.7 %) of the PHCC doctors stated that they see less than 20% of elderly patients in their daily practice.

Table 2: Distribution of the sample by medical experience and percentage of elderly seen routinely in practice (n=140).

Variables		Frequency	Percentage
Work Experience	less than 5 years	30	21.4
	5-10 years	42	30.0
	more than 10 years	68	48.6
Percentage of elderly seen routinely	<20	64	45.7
	20-50	57	40.7
	50-75	19	13.6
Total		140	100

Participants were asked if they feel confident in prescribing for elderly patients, and more than half 78 (55.7%) of doctors stated a positive response, while 49 (35%), and 13 (9.3%) were uncertain, or had a negative response respectively. Only 18 (12.9%) of doctors knew what was Beer's criteria. Table (3) shows the responses of the studied sample.

Table 3: Distribution of the sample by responses (n=140).

Confidence in prescribing for elderly	No	13	9.3 %
	Not sure	49	35 %
	Yes	78	55.7 %
knowledge about Beers' criteria	No	122	87.1 %
	Yes	18	12.9 %
Total		140	100 %

Figure (1) shows Beer's criteria score among the sample. 51 (36.4 %) scored less than 5, while 57 (40.7 %) and 32 (22.9 %) had a score of 5-6, and >6 respectively.
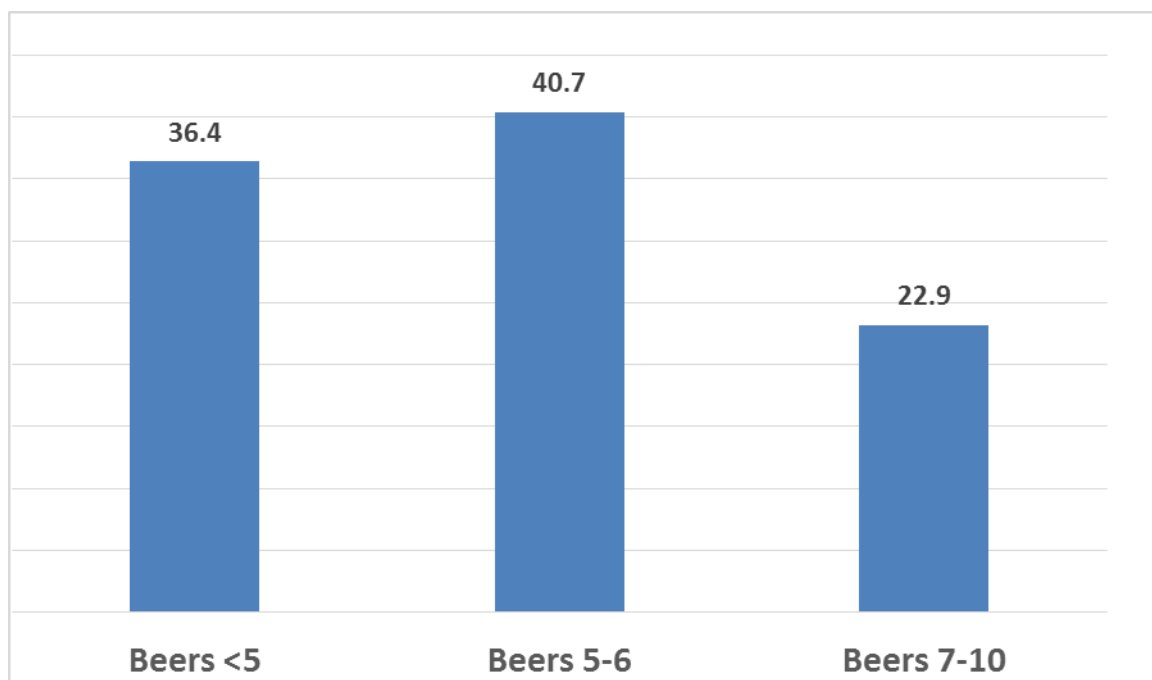

Figure 1: Beer's criteria scores.

The most commonly prescribed potentially inappropriate medicines identified in the study included NSAIDs like naproxen, diclofenac, and indomethacin, for osteoarthritis geriatric with a history of dyspepsia instead of tramadol. Prescribing diazepam, zolpidem, and olanzapine for the short-course treatment of sleeping disorders in geriatric patients instead of diphenhydramine. Using amitriptyline, sertraline, or nortriptyline, instead of the first choice of fluoxetine in a non-hypertensive, nondiabetic geriatric. Verapamil in constipation, digoxin in atrial fibrillation, chlorpropamide in a recently diagnosed type 2 DM, and

meclizine in hypertensive geriatric with benign prostatic hypertrophy. Figure (2) shows the frequency of potentially inappropriate medicines prescribed.
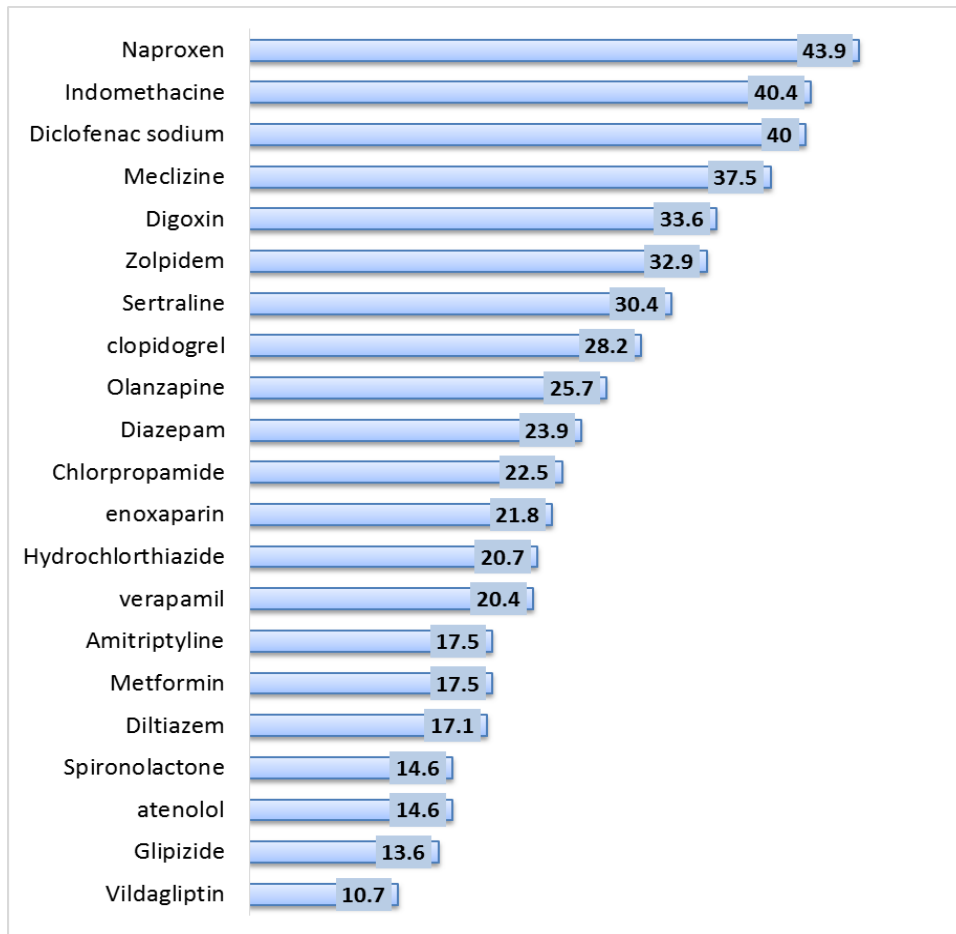

Figure 2: The percentage of potentially inappropriate medicines prescribed.

Table (4) depicts the association of Beer's criteria with sample characteristics. The study showed a significant association between high scores of Beer's criteria and the medical degree among PHCC doctors (p-value<0.001).

Table 4: Distribution of the sample by Beer's criteria according to the sample characteristics (n=140).

Variables		Beer's Criteria			Total	P value
		<5	5-6	7-10		
Gender	Female	31(32.6%)	41(43.2%)	23(24.2%)	95(100%)	0.158
	Male	20(44.4%)	16(35.6%)	9(20%)	45(100%)	
Degree	Bachelor	13(50 %)	6(23.1%)	7(26.9%)	26(100%)	0.000
	Diploma	10(45.5%)	12(54.5%)	0	22(100%)	
	Master	8(66.7%)	4(33.3%)	0	12(100%)	
	Board	20(25%)	35(43.7%)	25(31.3%)	80(100%)	
Experience (in years)	<5	13(43.3%)	8 (26.7%)	9 (30 %)	30(100.0%)	0.067
	5-10	17(40.5%)	18(42.8%)	7 (16.7%)	42(100.0%)	
	>10	21(30.9%)	31(45.6%)	16(23.5%)	68(100%)	
Percentage of elderly seen routinely	<20	21(32.8%)	28(43.7%)	15(23.5%)	64(100%)	0.141
	20-50	20(35.1%)	24(42.1%)	13(22.8%)	57(100%)	
	50-75	10(52.6%)	5(26.3 %)	4 (21.1 %)	19(100%)	
Knowledge of Beer Criteria	No	45(36.9%)	48(39.3%)	29(23.8%)	122(100%)	0.656
	Yes	6 (33.3%)	9 (50 %)	3 (16.7 %)	18(100%)	

DISCUSSION

The current study showed that 55.7 % of physicians had the confidence to prescribe medicinal drugs to elderly patients, this was higher than the results reported by Beyer E and Choi J where the confidence level was 45.4%.[9] But lower than findings stated by Akande-Sholabi W and Fafemi A in Nigeria 2022[10] where 90.3% of physicians had confidence in the care they provide to elderly patients. The present result was also lower than that reported by Maio V et al[11], and by Ramaswamy R et al[8], and a study by Djatche L et al[12], and Abdkhilili A et al study[13] where 88%, 75%, 72%, and 64.4% of physicians reported general confidence in their ability to prescribe respectively. This difference might be related to educational systems, training courses provided, and the fact that most of the PHCCs are not geriatric-friendly as the current study showed that many PHCC doctors reported seeing less than 20% of elderly patients in their daily practice. This might direct the awareness and knowledge of physicians, in the same context the awareness about Beer's criteria was low, as the present study showed 18/140 (12.9%) of physicians knew what Beer's criteria was, this finding is lower than that reported by Abdkhalili A et al where 25.8% of the respondents were familiar with Beer list.[13] Also lower than the result reported by Akande-Sholabi W and Fafemi A[10], where 10/31 (32.2%) of physicians knew the criteria correctly. In the present study, only 22.9% of PHCC physicians had good Beer criteria score which agrees with findings reported by Abdkhalili A et al in Palestine 2021[13] where 23.2% of participants had good knowledge, yet the current results were lower than that published by Ramaswamy R et al[8] where 31% of doctors answered correctly, and also lower than the finding reported by Akande-Sholabi W and Fafemi A study[10] where 35.4% of physicians had a good Beer's criteria score The current study pointed to potentially inappropriate medicines for geriatric patients ranging from NSAIDs, and daily life symptoms reliefs like sleep, constipation, antipsychotics, selective-serotonin-reuptake-inhibitors, and urgency urination, upto chronic disease medications, which is agreeing with a study by Kua K et al 2020 Malaysia[14], and Bahat G et al 2017[15] as geriatric medicine requires the manipulation of multiple drugs and multiple complaints simultaneously. The present study showed a significant association between good scores of Beer's criteria and having a higher medical degree (p-value<0.001) which might be related to the intensive training that board-certified physicians get. Likewise, a study by Maio V et al, showed that all trainees in geriatric medicine had higher scores.[11] Years of experience had no significant association with Beer's criteria score agreeing with Abdkhalili A et al study in 2021 Palestine[13], and Akande-Sholabi W, Fafemi A, study in 2022.[10]

CONCLUSIONS AND RECOMMENDATIONS

Only 12.9% of PHCC doctors knew Beer's criteria and 22.9% had a good score indicating a need to increase awareness through workshops and seminars, regular clinical meetings that would improve the health professionals' use of Beer's criteria and thus lower the impropriate drug use in elderly. Activating the role of geriatric medicine sub-specialty in primary health care centers and geriatric-friendly PHCC is in demand.

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