

**HOW MUCH OUR GERIATRICS KNOW ABOUT THEIR MEDICATIONS**<sup>1</sup>\*Mekdad, S.S. and <sup>2</sup>AlSayed, A.D.<sup>1</sup>Senior and Clinical Pharmacist, King Fahad Medical City<sup>2</sup>Consultant Medical Oncology, King Faisal Hospital and Research Center, Riyadh 11211, Saudi Arabia**\*Corresponding author e-mail:** [sanaamekdad@hotmail.com](mailto:sanaamekdad@hotmail.com)**ABSTRACT**

The aging population is increasing worldwide. The decline in cognitive functions, health literacy, visual and hearing limitations add to the challenge of acquiring adequate knowledge. The level of Knowledge has been associated with overall health outcomes. This study aimed to address the Medication Knowledge (MK) in elders. Identify factors associated with knowledge and areas where the knowledge needs to be enhanced. The MK in elders was poor. Illiteracy, Polypharmacy and follow up in multiple clinics compromised knowledge. Knowledge with regards to side effects fared worse. Elders were most knowledgeable on how to store the medications and refills dates. Elders considered knowledge provided by medical staff about their medications as inadequate. The health care providers should be aware that a large gap in MK exists in elders. Multiple factors make MK enhancement in elders very challenging. Knowledge Improvement requires defining evidence based approaches and needs to be individualized. Prospective studies addressing the impact of interventions on improving knowledge and important outcomes like safety, adherence and mortality are needed.

**Key words:** Medication Knowledge, polypharmacy, Geriatrics, Medication Knowledge Assessment Questionnaire.**INTRODUCTION**

The aging population is increasing in many countries and expected to increase three folds in US by 2050.[1, 2].The life expectancy of the elderly population is also expected to increase. Older age is associated with decline in cognitive functions. Visual and hearing limitations also add to the challenge of acquiring knowledge. Decreased renal, hepatic and bone marrow reserves alters the pharmacokinetics and increases susceptibility to adverse effects of the medications.[4, 5]. The elderly suffer from multiple medical conditions and therefore polypharmacy is common in this population and is associated with decreased adherence.[6]. Randomized trials have shown poly pharmacy in elderly is associated with increase morbidity and mortality.[7, 8]. The factors related to adherence: Socioeconomic factors, Health Care system, Disease related, Therapy related and Patient

related factors was defined by World Health Organization.[9].All these factors add to the complexity of medication management in the elderly population. Trials addressing various aspects of the medications management in elderly are limited. The study attempted to understand the knowledge of our elders of their medications. It aimed to identify areas of strength and weakness in knowledge in our elders and how this can be utilized in better medication management.[10].The knowledge gained will help in identifying the need for medication reviews in this population and how this can improve the overall outcome.

**MATERIALS AND METHODS**

A Cross sectional survey was conducted in an Ambulatory Care Setting at a Tertiary Care Center, (King Fahad Medical City), Riyadh, Saudi Arabia form January 2014- November

2014. A total of 365 Geriatrics patients ( $\geq 65$  years old) were included. The patients were recruited when they came for dispensing their prescriptions. The baseline characteristics were recorded. A Medication Knowledge Assessment questionnaire (MKAQ) available online by the American Society on aging and American Society of Consultant Pharmacy Foundation was used (1). Patients and or their caregivers were interviewed by a Geriatric Clinical Pharmacist (CGP) to fill the MKAQ. The major components include exploring knowledge of the medications in the following areas: Number of medications, Names, Indications, Directions of use, common side effects of each medication. The answers of all questions were either know or don't know. The knowledge and answers about side effects were classified as Correct, Incorrect or I don't Know. Data collection included number of clinics followed outside the tertiary care center, use of pain medications outside the prescriptions medication list, who gives the medications and how they perceived the health staff explanation about their medications. The answers to the latter were categorized to very clear, to a certain extent, not at all. Patients with Alzheimer's disease or on medications for dementia were excluded. Satisfaction of the participants was obtained after the study questionnaire was completed. No formal satisfaction survey was done but a simple question was asked if they found this interview helpful in enhancing the understanding of their medications. The study was approved by the Institutional review Board at the center.

The research was done in compliance with the ethical rules for human experimentation that are stated in the Declaration of Helsinki (*JAMA* 1997;277:925-926), including approval of an institutional review board – or human experimentation committee – and informed consent.

Statistical Considerations: Statistical analysis was performed using SPSS software (version 21). Descriptive statistics to calculate patient's baseline characteristics data like mean age, gender, number of medications used by patients, percentage of patients using herbal or over the counter medication (OTC) and patient's knowledge of different aspects of the questionnaire the patients answered, **Chi-Square** test was used to determine the relationship between different aspects of knowledge and level of education, t-test was used to measure

the statistical relationship between number of medications and different aspects of knowledge.

## RESULTS

Of the 367 patient eligible only 2(0.5%) patient refused to participate. The main reason stated was lack of time. The baseline characteristics of the 365 participants are detailed in (Table 1). More than half of our elders were illiterate. The mean number of medications they were taking was seven. More than half were self-dependent in taking and managing their medications.

The age was not related to the MK but male were more likely to have a better knowledge about indications, directions of use. There was a relation between level of education and most of the parameters of the study with the exception of next refills and storage of medications. While numbers of medications was significantly related to the knowledge about indications, directions of use. The relationship of knowledge with level of education and polypharmacy is shown in (Table 2).

The level of education was related to knowledge about the side effects. This knowledge was not affected by the number of medications.

OTC use was seen in 20%. Additional Pain medications were used by 6% aside the prescriptions medications and the most commonly used pain medications was Acetaminophen and NSAIDS. Use of herbal medications was documented in 8%. Most of the seniors answered no to this questions unless the local common herbal remedies are mentioned by name.

The use of OTC and herbal medications were not related to level of education  $P= 0.83$  (NS) and  $P= 0.59$  (NS). Most herbal remedies were affected by the local practice and market but many elders were using herbal remedies with international labels.

The majority of elders almost three quarters expressed that the information provided by the medical staff about their medications was inadequate. Table 3

## DISCUSSION

Despite the increasing age, multiple medical problems and polypharmacy, the majority of elders are still self-dependent in managing their

medications. There is a large gap in MK in our elders. Studies done on elders assessing the knowledge revealed conflicting results [11, 12]. These studies showed good knowledge with regards to name, indications and directions of use, in contrast to our study that showed poor results in all aspects of MK. A finding consistent in studies, done in different settings and different countries, was the poor knowledge about the side effects [12, 13]. Our study was no exception. The poor knowledge of side effects is inversely related with adherence [12,14]. Illiteracy was found to be the strongest factor associated with all aspects of medication knowledge and may be the main explanation for poor global knowledge in our study. The literacy rates vary among populations. Illiteracy in general and limited health literacy was shown to be associated with increased overall mortality in elderly.[15, 16]. Therefore this study supports the importance of addressing literacy and means to overcome it in any improvement of medication knowledge in elderly populations.

Polypharmacy was an important factor that affected many aspects of medication knowledge. Polypharmacy in the current study was related to knowledge about names, indications and directions of use. It is a common issue in elders with increasing medication needs for conditions associated with aging[17]. Polypharmacy is related to poor adherence. [18]. It affects the overall outcome and attempts should be made to optimize polypharmacy in elderly as supported by other studies.[19, 20]

An important finding was that less than a quarter felt that information provided by medical staff about their medications was adequate. Despite that they scored reasonably well in knowledge of next refills and how to store the medications. The latter observation supports knowledge can be improved as our elders grasped this aspect of knowledge more clearly. Indeed studies support that providing more time and availability to answer questions can improve knowledge in elders[21]. With visual, auditory and education background limitations the best modality of education need to be individualized. The caregivers should also be the targeted of knowledge improvement[8]. Prospective

comparative studies are needed to identify the best education aids for our elders and their caregivers. Elders use OTC and pain medications frequently aside from their prescribed medications. The use of pain medications especially NSAIDs can be potentially more toxic in elderly. Studies have found poor knowledge of elderly about the side effects of NSAIDs [22]. This study suggested a more safe practice for use of pain medications in the elderly needs to be defined. What is considered an OTC for general population may need to be revised for elders. The use of herbs are common and the access to herbs has become easier with globalization. Studies addressing the role of herbs on medication safety are very limited and well-designed studies are required taking into consideration the local practice of herbal use.

In this study the elders were willing to participate in clinical studies. Reviewing medication knowledge was welcomed. This attitude improves feasibility of further studies in this population. Many clinical trials exclude elders for various reasons but this study supports that elderly are as willing to participate in clinical studies. Overwhelming majority of our elders found such reviews helpful. Regular medication reviews in elders are encouraged.

## CONCLUSIONS

The health care providers need to be aware that medication knowledge of their self-dependent elders can be poor. The side effects of medications are an area where knowledge seems most deficient. Illiteracy and Polypharmacy is prevalent and always need to be considered in Knowledge improving projects. We need to rethink the way elders are educated as the majority perceive knowledge given by the health care providers as not satisfactory. Prospective studies are needed to identify best tools of medication knowledge enhancement in elderly and their caregivers. These tools and methods should be tailored and individualized. The impact of these interventions in improving knowledge, safety, adherence and overall outcomes need to be measured. The elders are as willing to participate in trials and their routine exclusion should be avoided. Regular medication reviews in elders are encouraged and will improve the overall safety of medications.

Table 1: Baseline characteristics of Patients

Characteristics	Numbers	Percentage	Comments
Gender			
Male	204	55.9%	
Female	161	44.1%	
Mean age	73 +/- 7		
Level of Education			
Illiterate (Unable to read or write)	186	51%	
Primary School	73	20%	
Intermediate	76	20.8%	
Secondary	19	5.2 %	
University	11	3%	
Nationality			
Saudi	359	98%	
Non Saudi	6	2%	
Social Status			
Married	219	60%	
Widowed	139	38%	
Unknown	7	2%	
Follow in more than 1 Hospital	18	5%	
Pain medications	22	6%	86% Acetaminophen (19 ) 10% NSAIDS ( 2 ) 4.6 % Unknown (1)
Mean Number of Medication	7 +/-3		
Who Gives the Medications			
Self	183	50 %	
Family Member	146	40%	
Housemaid	36	10%	
Herbs Use	8%		
OTC use	20%		

Table 2 Relations of studied Parameters with Level of Education and Polypharmacy

STUDIED PARAMETERS	Knowledge Results Percentage	Relationship with Education level Chi-Square	Relation with Number of Medications T-test
Names of Medication	3%	P= 0.001	P= 0.892 (NS)
Indications	17%	P= 0.005	P= 0.001
Directions of Use	32%	P= 0.001	P= 0.04
Side Effects	67%	P= 0.032	P= 0.52 (NS)
I do not Know	25%		
Incorrect			
Correct	8%		
Next refill	70%	P= 0.46 (NS)	P=0.77 (NS)
Storage	80%	P= 0.76 (NS)	P=0.11 (NS)

Table 3 Knowledge Perceived by Health Care Providers

Degree of clearance	Percentage
Clear and Adequate	27%
To Certain Extent	49%
Not at All	24%

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