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Prevalence of Diseases and Observation of Drug Utilization Pattern in Elderly Patients: A Home Medication Review

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Abstract

Medication related risk factors and their effect on health outcomes in geriatric patients remains unclear, which can only be identified by home visits. Therefore in the present study door to door survey was conducted in an area of 2 sq. km surrounding Shri Mahant Indiresh Hospital of Dehradun to determine drug utilization pattern and prevalence of chronic diseases in elderly by visiting them in their community. The study was primarily targeted at the elderly because, as a group they take more drugs than their younger counterparts and are known to be at risk of the side effects of many of the drugs they consume. The study shows that Cardiac disorders (34%) were most prevalent among elderly population. 40% patients were non-compliant due to poor economic status, difficulty in swallowing of the prescribed dosage forms, and disturbing side effects. The study also shows that Self-medication (38%) was a prevalent phenomenon among the elderly. 20% patients suffered from side effects of the drug were advised either to reduce their dosage regimen or to visit their physician with a request for an alternate medicine.

Present study concludes that a home medication review greatly decreases the load on tertiary care services for the elderly, which in India are sadly lacking. This may be because the Indian elderly at present are mostly in the "young elderly" age group (60 to 75 yrs old) in which there is little demand for long term health care.

Key words: *Home medication review, Selfmedication, Geriatrics, and Polypharmacy*

INTRODUCTION

Home Medication Review is a concept where a pharmacist has the opportunity to visit a patient in the familiar surroundings of the latter's home and questions that no one has been able to confidently answer can be answered. Medication review takes the pharmacist out of the shop into the community. Home medication review is an exciting opportunity for Indian pharmacist to contribute further to the health care of their communities.

The human body is in a state of change as the years go by. There is a progressive functional decline in many organ systems with advancing age. Age-associated physiologic changes may cause reduction in functional reserve capacity (i.e. the ability to respond physiologic challenges or stresses). The cardiovascular, musculoskeletal and central nervous system appears to be most affected. The elderly have multiple and often chronic diseases. It is not surprising therefore that they are the major consumer of drugs [1]. There has been a steady increase in the number of elderly people, defined as those over 65 years of age. Several conditions are likely to be present. A number of factors are believed to increase the risk of drug related problems in the elderly, including suboptimal prescribing (e.g. overuse of medications or polypharmacy, inappropriate use, and under use), medication errors (both by dispensing and administration problems) and patient medication, non-adherence (both intentional and unintentional) [2].

A number of studies have investigated medications and medication-related risk factors in patients' homes [3, 4]; however, the medication-related problems found in those studies were not linked to patients' health outcomes.

Other studies have sought to investigate the relationships between a limited number of medication-related risk factors that might be identified by a home visit and adverse health outcomes. Hospital admission secondary to adverse drug reactions was found to be related to the use of two or more pharmacies, while drug side effects were reported as the reason for non-adherence in 35% of patients whose admission was related to non-adherence [5]. Non-adherence also precipitated about 5% of hospital readmissions in geriatric patients previously discharged on three or more drugs prescribed for chronic conditions [6]. Similarly, poor adherence was associated with increased risk of adverse drug events (ADEs) in the elderly [7], and hospital admission due to drug-related problems can result in patient morbidity, mortality and

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increased health costs [8]. It is possible that other medication-related risk factors identified at home visits could be associated with poor health outcomes, but these medication-related risk factors have not, to date, been extensively studied.

This study has been conducted to observe the drug utilization pattern and prevalence of chronic diseases in elderly by visiting them in their community.

METHODOLOGY

A Door to door survey was conducted to identify the residents of age 65 years and above from May 2008 to July 2008. 100 subjects were included for the study after informing them about the purpose of the study and prior consent. Patients were included in this study if they satisfied one or more of the following criteria: (i) on five or more regular medications; (ii) taking twelve or more doses of medication per day; (iii) three or more medical conditions; (iv) suspected to be non-adherent with their medication regimen; (v) on medication(s) with a narrow therapeutic index or requiring therapeutic monitoring; (vi) had significant changes made to their medication regimen in the previous three months; (vii) had signs or symptoms suggestive of possible medication induced problems; (viii) had an inadequate response to medication treatment; (ix) admitted to hospital in preceding four weeks; (x) at risk in managing their own medications due to language difficulties, dexterity problems or impaired sight. A questionnaire was prepared, many practical questions regarding diseases, medication prescribed, health status involving socioeconomic status, family support, were included[9]. The geriatric subjects were quite cooperative and confident in answering the questions since it was their familiar surrounding i.e. home. Table-1 shows the questions which were asked during medication review of elderly patients.

RESULTS

This community based survey included 100 elderly patient.49% were males and 51% were females. Elderly population suffers from numerous chronic disorders. The present study highlights that Cardiac disorders were most prevalent among the concerned elderly population. A Total of 120 individual drugs were prescribed to the elderly patients (Table-2), out of which Antihypertensive drugs(31%), Anti-diabetic drugs (22%), Antiplatelet agents(16%), Anti-rheumatic drugs (24%), Bronchodilators (7%), Hypolipidemic drugs (2%), Anti-tubercular drugs (1%), and drugs acting on Thyroid gland (1%) were prescribed. 60% of the patients were compliant, while the remaining 40% were non-compliant for their medication. The reasons for non-compliance are shown in Fig 2.Difficulty in swallowing tablets (25%) was the most common cause of patient non-compliance. This survey also revealed that 38% of the elderly does self-medication, out of which 32% take allopathic medicines and 6% take ayurvedic and homeopathic medicines. Reasons for self medication are listed inTable-3. Drugs like Multivitamins, Iron and Calcium supplements were taken by the elderly as Over the Counter preparation (Table-4). Analgesics and Antipyretics were commonly taken by the elderly for self medication (Table-5). From this survey, it was found that 35% of the patients faced problem with the structure and furnishing of the house, climbing stairs was a problem to them. 65% of the patients were regular with the review of their prescription order and regularly visited their physician. 25% were not regular because of lack of time and in 5% patient's family members were not supportive.

Table.1: Questionnaire

Questions were asked regarding
1. Disease of patient and medicines prescribed.
2. Patient compliance for medication. If no, then reason.
3. Any other medications (ayurvedic, allopathic, homeopathic) taken by the patient which neither pharmacist nor doctor knew.
4. Risks associated with the structure of house and furnishing (such as poor lightning, stairs obstacles etc).

Table.2 : Classification of drugs prescribed to the elderly.

DRUG CLASSIFICATION	%AGE	DRUGS	DOSE	DOSAGE FORM
1.Antihypertensive drugs	31%	Amlodipine, Atenolol,	5 mg o.d	Tablet
		Metoprolol	50 mg o.d	Tablet
		Ramipril	50 mg o.d	Tablet
			2.5 mgo.d	Tablet
2. Anti-diabetic drugs	22%	Glipizide+Metformin	5+500 mg	Tablet
		Glemipride+Metfprmin	15+500 mg o.d	Tablet
3. Anti-platelet drugs	16%	Aspirin (10%)	150mg	Tablet
		Clopidogrel (6%)	75 mg o.d	Tablet
4. Anti-rheumatic drugs	14%	Diclofenac	50 mg	Tablet
		Naproxen	250 mg	Tablet
		Etoricoxib	60 mg o.d	Tablet
5.Bronchodilators	7%	Salbutamol	2 mg o.d	Tablet
		Theophylline	35 mg o.d	Tablet
		Montelukast	10 mg o.d	Tablet
6. Anti-deppresant drugs	4%	Fluoxetine+Alprazolam	20+0.25mg	Tablet
		Olanzapine	5mg b.d	
7. Hypolipidemic drugs	2%	Atorvastatin	10 mg o.d	Tablet
8.Anti-parkinsonism drugs	2%	Levodopa+Carbidopa	200+50 mg t.i.d	Tablet
9. Anti-tubercular drugs	1%	Rifampicin +Isoniazid,	600+300 mg o.d	Tablet
10. Agents acting on thyroid function	2%	Thyroxine (Eltroxin)	100 mg o.d	Tablet
11. Anti-anginal drugs	1%	Nitro- glycerine	20 mg o.d	Tablet

Table.3: Reasons for Self-medication

REASONS	% PATIENTS	% MALE	% FEMALE
Lack of time	23%	15%	8%
High consultation fee	29%	14%	15%
Quick relief	18%	18%	0%
Believes in Ayurveda	16%	3%	13%
Family members are not supportive	5%	0%	5%
Unable to walk	9%	0%	9%

Table.4: Over the counter drugs used by the elderly.

DRUGS	DOSE	DOSAGE FORM
ecosule(vit.B complex)	500mg o.d	Capsule
vion(vit.E)	500mg o.d	Capsule
exorange(iron prep.)	50ml 2tsf b.d	Syrup
enadon(pyridoxine)	40mg o.d	Tablet
upracal(calcium citrate+magnesium hydroxide)	100mg b.d	Tablet
olbala plus(Methylcobalamine+lipoic acid)	10 mg b.d	Capsule

Table.5: Drugs taken by the elderly as Self-medication

Drugs	%Male	% Female	Drugs	Dose	Dosage Form	Use
Analgesics/ antipyretic	34%	36%	Aspirin	500mg o.d	Tablet	Headache
			Nimuslide	100mg o.d	Tablet	Body pain
			Paracetamol	500mg o.d	Tablet	Fever
Antacids	5%	2%	Ranitidine	300mg o.d	Tablet	Acidity
			Aluminium hydroxide + Magnesium hydroxide	250mg + 250mg (170ml) 1tsf b.d	Syrup	
Expectorant	4%	0%	Chlorpheniramine maleate +Codeine phosphate	4mg + 10mg/ml (10ml)1tsf o.d	Syrup	Cough
Multi-vitamins	2%	2%	Vit.-B complex	500mg o.d	Capsule	Weakness
			Methylcobalamin +foliacid+ vit.B_6	(1500mcg + 1.5mg + 10mg+ 3mg+100mg) o.d	Capsule	
Ayurvedic and homeopathic drugs	10%	5%	Rasayan vishista	50ml 1 tsf	Semisolid	Hypertension
			Rumalaya forte	500mg o.d	Tablet	
			Mahayograj guggul	1 tsf	Powder	

Fig.1: Prevalence of chronic disorders among elderly

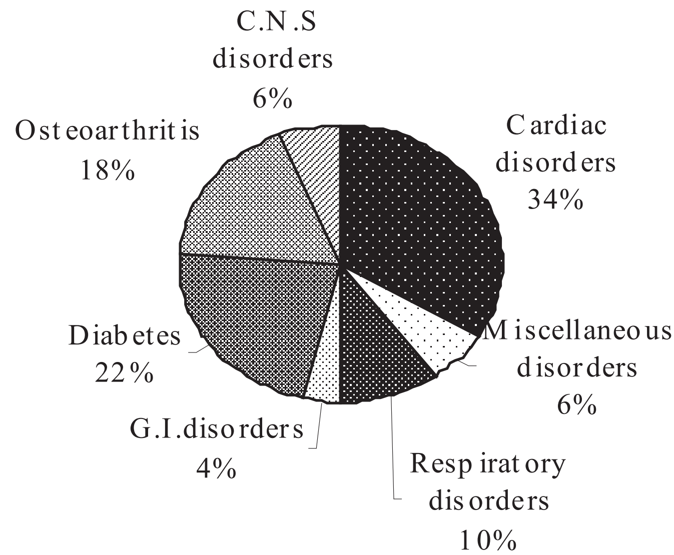
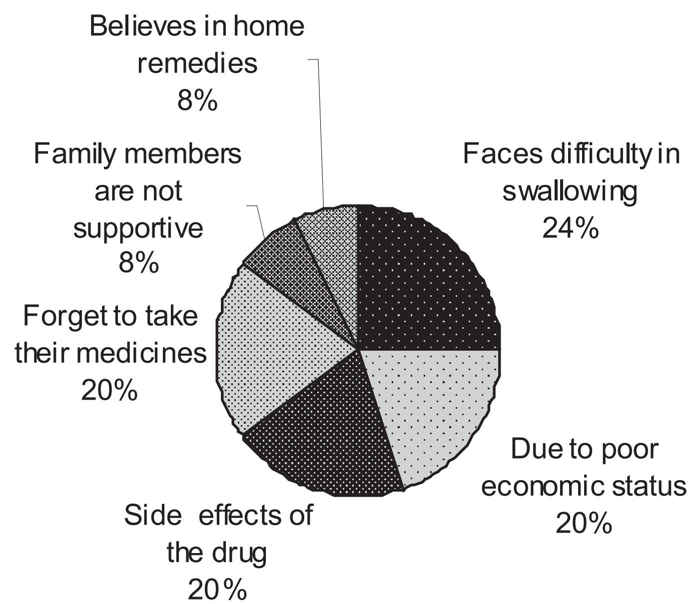


Fig.2: Reasons for non-compliance among elderly



DISCUSSION

Prescribing for geriatric patients requires an understanding of the efficacy of the medication in frail older people, assessment of the risk of adverse drug events, discussion of the harm: benefit ratio with the patient, a decision about the dose regime and careful monitoring of the patient's response. This requires evaluation of evidence from clinical trials, application of the evidence to frail older people through an understanding of changes in pharmacokinetics and Pharmacodynamic, and attention to medication management issues. Given that most disease occurs in older people, and that older people are the major recipients of drug therapy in the Western world, increased research and a better evidence base is essential to guide clinicians who manage geriatric patients.

CONCLUSION

A home medication review greatly decreases the load on tertiary care services for the elderly, which in India are sadly lacking. This may be because the Indian elderly at present are mostly in the "young elderly" age group (60 to 75 yrs old) in which there is little demand for long term health care. Several forums have discussed the need for more emphasis on geriatric medicines and management in India. The public health system needs more centers and specialist in this field." We cannot heal the old age, but let us protect it, promote it and prolong it."-Sir J Ross (9)

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