

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

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Abstract

Geriatric patients may have medication-related risk factors only identified by home visits, but the extent to which those risk factors are associated with poor health outcomes remains unclear. To observe the drug utilization pattern and prevalence of chronic diseases in elderly by visiting them in their community. A door-to-door survey was conducted in an area of 2 sq. km surrounding Shri Mahant Indires Hospital of Dehradun, to identify geriatric residents, diseases prevalent in them and prescription pattern. 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 result of this study showed that 34 % geriatric patients were suffering from cardiac disorder while 22% from diabetes and 18% from osteoarthritis 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. Self-medication (38%) was a prevalent phenomenon among the elderly. The study concludes that cardiac disorders, diabetes and rheumatism were the most prevalent diseases and self-medication was the prevalent phenomenon responsible for the adverse drug reactions in geriatric patients. The study suggests that elderly patient education through home medication review can significantly improve patient knowledge and compliance with medication.

Keywords: Home medication review, Noncompliance, Selfmedication, Geriatrics, 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 consumers 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 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. 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. Questionnaire was analyzed by using SPSS Microsoft Excel.

INCLUSION CRITERIA

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.

RESULTS

This community based survey included 100 elderly patient. 49% was males and 51% was females. Fig 1 shows prevalence of numerous chronic disorders in concerned elderly population. The reasons for non-compliance are shown in Fig 2. Difficulty in swallowing tablets (24%) was the most common cause of patient non-compliance. 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. 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 in Table-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).

DISCUSSION

The results from present study demonstrate that cardiac disorders, diabetes and rheumatism were the most prevalent diseases in geriatric patients of considered area. This study suggests that Difficulty in swallowing tablets and economic factors are the majorly responsible for non-compliance of geriatric patients so alternative dosages form other than tablet may enhance the compliance of the geriatric patients and economic factor should be considered by general practitioners at the time of prescribing. In our study, we found that self-medication was the prevalent phenomenon for drugs, which may be responsible for the adverse drug reactions of drugs in geriatric patients. The study provides some indication that the home medication review by a trained pharmacist may help to rationalize prescribing by general practitioners. The study also suggests that elderly patient education through home medication review can significantly improve patient knowledge and compliance with medication. The teamwork of general practitioners and pharmacist is needed. The public health system needs more specialists in this field. "We cannot heal the old age, but let us protect it, promote it and prolong it," Sir J Ros [9]

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, Metoprolol Ramipril	5 mg o.d 50 mg o.d 50 mg o.d 2.5 mgo.d	Tablet Tablet Tablet Tablet
2. ANTI-DIABETIC DRUGS	22%	Glipizide+Metformin Glemipride+Metfprmin	5+500 mg 15+500 mg o.d	Tablet Tablet
3. ANTI-PLATELET DRUGS	16%	Aspirin (10%) Clopidogrel (6%)	150mg 75 mg o.d	Tablet Tablet
4. ANTI-RHEUMATIC DRUGS	14%	Diclofenac Naproxen Etoricoxib	50 mg 250 mg 60 mg o.d	Tablet Tablet Tablet
5.BRONCHODILATORS	7%	Salbutamol Theophylline Montelukast	2 mg o.d 35 mg o.d 10 mg o.d	Tablet Tablet Tablet
6. ANTI-DEPPRESANT DRUGS	4%	Fluoxetine+Alprazolam Olanzapine	20+0.25mg 5mg b.d	Tablet
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

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

Table 4 -Over the counter drugs used by the elderly

S.N	DRUGS	DOSE	DOSAGE FORM
1.	Becosule(vit.B complex)	500mg o.d	Capsule
2.	Evion(vit.E)	500mg o.d	Capsule
3.	Dexorange(iron prep.)	50ml 2tsf b.d	Syrup
4.	Benadon(pyridoxine)	40mg o.d	Tablet
5.	Supracal(calcium citrate+magnesium hydroxide)	100mg b.d	Tablet
6.	Solbala 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 Nimslide Paracetamol	500mg o.d 100mg o.d 500mg o.d	Tablet Tablet Tablet	Headache Body pain Fever
ANTACIDS	5%	2%	Ranitidine Aluminium hydroxide +Magnesium hydroxide Chlorpheniramine maleate+Codeine phosphate	300mg o.d 250mg + 250mg (170ml) 1tsf b.d 4mg + 10mg/ml (10ml)1tsf o.d	Tablet Syrup	Acidity
EXPECTORANT	4%	0%	Vit.-B complex Methylcobalamin +foliacid+ vit.B ₆	500mg o.d (1500mcg +1.5mg+ 10mg+ 3mg+100mg) o.d	Syrup	Cough
MULTI-VITAMINS	2%	2%	Rasayan vishista Rumalaya forte Mahayograj guggul	50ml 1 tsf 500mg o.d 1 tsf	Capsule Capsule	Weakness
AYURVEDIC AND HOMEOPATHIC DRUGS	10%	5%			Semisolid Tablet Powder	Hypertension

Fig-1 Prevalence of chronic disorders among elderly

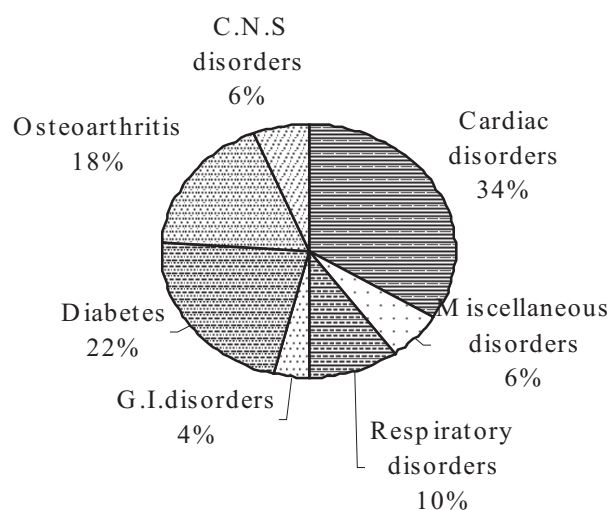
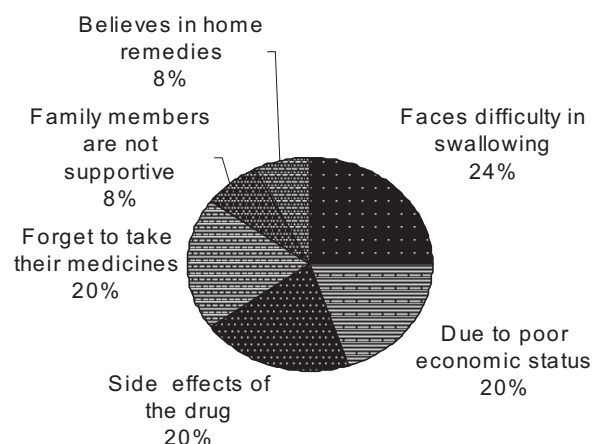


Fig.2 Reasons for non-compliance among elderly



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