

ORIGINAL RESEARCH ARTICLE

PROLONGED USE OF DRUGS IN TERTIARY CARE HOSPITALS- A PROSPECTIVE STUDY

¹DR.J.KAMARAJ, ^{*2}DR.S.M. THIRUNAVUKKARASU, ³DR. T. RAVIKUMAR, ⁴DR.A. MURUGANATHAN, ⁵DR.P. SARAVANAN, ⁶DR.S.SOPNAJOTHI

¹ASST.PROF OF MEDICINE , GOVT THENI MEDICAL COLLEGE , THENI

²ASSOCIATE PROF OF MEDICINE , GOVT THENI MEDICAL COLLEGE , THENI

³PROF AND HOD OF MEDICINE , GOVT MEDICAL COLLEGE AND ESI HOSPITAL, COIMBATORE

⁴PROF .OF EMMIRATTUS , THE T.N. DR.M.G.R.MEDICAL UNIVERSITY

⁵ASST. PROF. OF MEDICINE , GOVT MADURAI MEDICAL COLLEGE , MADURAI

⁶ASST.PROF OF MEDICINE , GOVT THENI MEDICAL COLLEGE , THENI

*CORRESPONDING AUTHOR

Abstract:

Introduction: Prolonged use of any drug may be harmful, especially if it is not an essential, life saving drug. While patients admitted for a critical illness in any hospital, during discharge, the list of drugs advised apart from life saving, contains the antacids, analgesics, antibiotic, multivitamins are prescribed only for the period of convalescence, but taken for months and years together without consulting doctors, which may not only waste of money but proves hazardous to health of the patients. Especially in a resource limited country where essential drugs are not available for poor, needy patients in time.

Aim: The aim of this study is to find out the percentage of patients getting, non essential, adjuvant, placebos and the drugs causing pill burden on patients and economy of nation and patient's.

Material and methods: All the patients attending outpatient department in various medical college hospitals of Tamil nadu and few prescriptions from private tertiary care hospitals, for follow-up are randomly selected for study. The study period is March 20018-April 2018

Results : Out of 5000 screened, totally 2434 prescriptions are found to have significant findings (48.68%) and the most prescribed drugs are 1)antacids, H2 blockers, Proton Pump Inhibitors, 2),B- complex vitamins,3,)Analgesic drug paracetamol,4),Amoxicillin -anti biotic 5),anti oxidants, Multi vitamins with Minerals

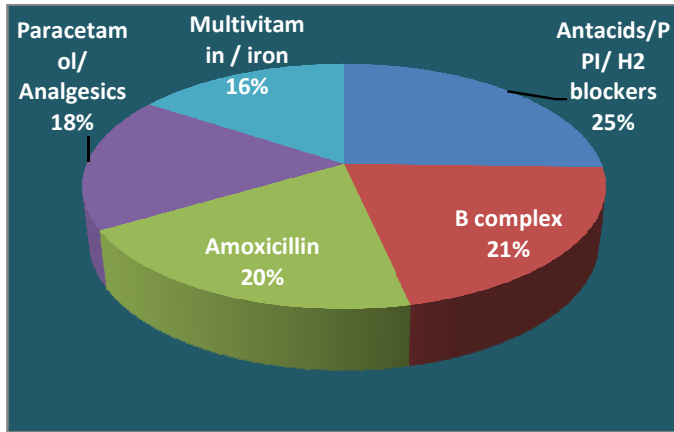
Key words: prescription audit, drug interaction, prolonged use of drugs

Introduction

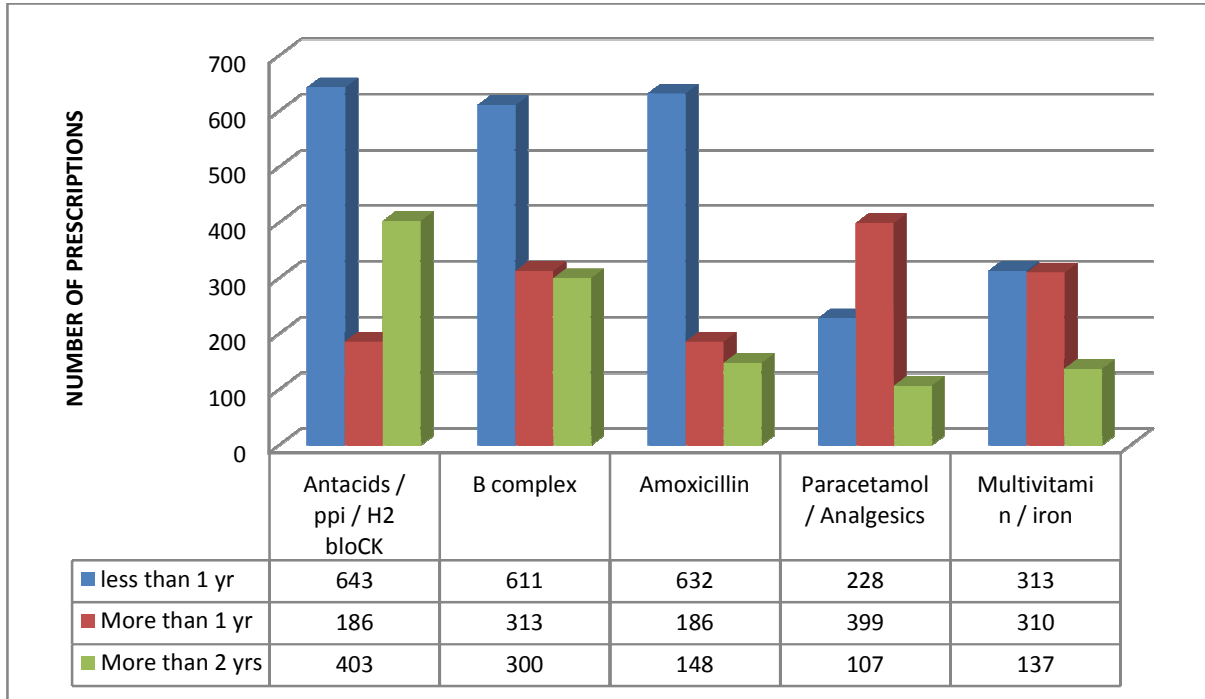
Rational use of medicines is simply defined as "Prescribing right drug, in adequate dose for the sufficient duration & appropriate to the clinical needs of the patients." A estimated one third of the world's population lack regular access to essential medicines with this figure rising to over 50% of the population in the poorest parts of Africa and Asia. When available, the medicines are often used incorrectly. More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly. The proportion of national health budgets spent on medicines ranges between 10% and 20% in developed countries and between 20% and 40% in developing countries. Thus, it is extremely serious that so much medicine is being used in an inappropriate and irrational way. Rational drug use attained more significance nowadays in terms of Medical, Socio-Economical and Legal Aspect. Poor Communication between Health Professional & Patients

Medical practitioners & other health professional giving less time to the patient & not explaining some basic information about the use of drugs.

Clinical guidelines. Essential medicines list based on treatments of choice., Drugs and therapeutics committees in districts and hospitals., Problem-based pharmacotherapy training in undergraduate curricula. Continuing in-service medical education as a licensure requirement. , Supervision, audit and feedback., Independent information on medicines., Public education about medicines., Avoidance of perverse financial incentives., Appropriate and enforced regulations Sufficient government expenditure to ensure availability of medicines and staff.



DRUGS	NO. OF PATIENTS	PERCENTAGE
Antacids/PPI/H2 blockers	1232	25%
B complex	1024	21%
amoxicillin	966	20%
Paracetamol/Analgesics	864	18%
Multivitamin/iron	760	16%



All prescriptions of ischemic heart disease patients (whether treated conservatively or CABG or with stents) containing Aspirin (Acetyl salicylic acid in 75-150/325 mg) and clopidogrel, are co-prescribed with antacids, and or proton pump inhibitors, or H2 blockers for preventing drug-induced gastritis, but they are continued for years together. When Doctors advised to stop, patients worry about impending gastritis, which may or may not be related to the drug, hence even a single attempt to stop them, this happens in almost all tertiary care centers with super specialty treatment. They should not be taken more than two months and they interact with absorption of drugs and food.

The therapeutic dosages and prophylactic dosages of vit B complex are different but the same drug is used in the same strength for both for years together. Calcium, multi vitamins, ferrous sulphate, vit C are other antioxidants drugs prescribed from many departments, patients totally confused with the full bag of drugs.

Antacids are a class of drugs used to treat conditions causing excessive acid produced in the stomach. The stomach naturally secretes hydrochloric acid that helps to break down proteins. This acid causes the contents of the stomach to be acidic in nature, with a pH level of 2 or 3 when acid secretion is active.

Antacids are used commonly for symptoms such as heartburn, abdominal pain (sometimes described as sour stomach) and nausea resulting from a number of conditions such as, inflammation or acid-peptic ulcers of the esophagus (esophagitis), stomach (gastritis), and duodenum (duodenitis).

Aluminum carbonate antacids can be used to treat and manage hyperphosphatemia, with a low phosphate diet to prevent the formation of kidney stones, since kidney stones are made up of various elements including phosphates.

Calcium carbonate antacids are used in conditions of calcium deficiency such as postmenopausal osteoporosis since some of the calcium is absorbed into the body.

Magnesium oxide antacids are used to treat magnesium deficiencies from either diets or medications that cause magnesium depletion.

Antacids (for example, calcium carbonate) when consumed in high doses and for long periods of time may cause acid rebound. Acid rebound is a condition in which the stomach produces even more acid after the consumption of foods and drinks. Fortunately, the effects of acid rebound are not clinically important.

High-dose calcium carbonate and sodium bicarbonate when taken together can cause a condition called milk-alkali syndrome. Its symptoms include headache, nausea, irritability, and weakness, hypercalcemia (high blood calcium levels), and reduced function of the kidneys.

Extensive use of aluminium-containing antacids may cause hypophosphatemia (low phosphate levels in the blood), which in severe cases could lead to muscle weakness, anorexia, and osteomalacia (softening of the bones due to defective bone mineralization).

Antacids containing aluminium hydroxide should be used with caution in patients who have recently suffered massive upper gastrointestinal bleeding.

For patients with conditions such as high blood pressure, chronic heart failure, renal failure and those who have sodium or salt-restricted diets, it is important to pay attention to the sodium level in sodium-based antacid preparations such as sodium bicarbonate

Antacids may cause dose-dependent rebound hyperacidity and milk-alkali syndrome.

Antacids that contain aluminum hydroxide may cause constipation, aluminum-intoxication, osteomalacia, and hypophosphatemia.

Antacids that contain magnesium have a laxative effect that may cause diarrhea, and in patients with renal failure they may cause increased magnesium levels in the blood, because of the reduced ability of the kidneys to eliminate magnesium from the body in the urine.

When antacids are taken with acidic drugs (for example, digoxin, phenytoin, chlorpromazine, isoniazid), they cause the absorption of the acidic drugs to be decreased, which causes low blood concentrations of the drugs, which ultimately results in reduced effects of the drugs.

Antacids taken with drugs such as pseudoephedrine, and levodopa, increase absorption of the drugs and can cause toxicity and/or adverse events due to increased blood levels of the drugs.

Antacids that contain magnesium trisilicate and magnesium hydroxide when taken with some other medications (such as tetracycline) will bind to the drugs, and reduce their absorption and effects.

Sodium bicarbonate has a strong effect on the acidity of the urine, and this can affect the elimination (excretion) of some drugs by the kidney. Thus, sodium bicarbonate inhibits the excretion of basic drugs such as quinidine and amphetamines, and increases the excretion of acidic drugs such as aspirin.

Despite their ease of availability and common use, PPIs can have **severe** side effects. The long-term consequences of chronic PPI use include the potential increased risk of hypocalcemia, hypomagnesemia, Clostridium difficile infections, and pneumonia.

Pantoprazole was prescribed in majority of cases 68.5% followed by Ranitidine (31.5%). The incidence of polypharmacy was high, average number of drugs per prescription was 6.35. Only 36% prescriptions had an adequate indication for these drugs. Antimicrobials and NSAIDs were the most common drugs used concomitantly. It was inappropriately prescribed with NSAIDs in 90% patients and in 53.5% patients with anti-microbial agents.

In present study we observed many patients received anti-secretory drugs improperly for unjustified indication. Awareness should be increased among the clinicians regarding long term adverse effect of anti-secretory drugs and cost burden due to anti-secretory drugs. Clinicians must follow rational way while prescribing PPI's.

Therefore, it seems necessary to provided public trainings for all women of reproductive age and train them about the dangers and side effects of self-medication.

There is an increase in the rates of poly pharmacy in most parts of the world. Data from England, Sweden, United States, Scotland, etc., suggest that there is a significant increase in poly pharmacy in general, in the last decade or so. Studies have shown that compared to adult population, the rate of polypharmacy is higher among elderly. A Swedish study reported that in the year 2010, 16.4% of elderly patients aged 65 years or above were receiving 10 or more medications.,

Long-Term Effects of Painkillers. There are a number of unpleasant side effects associated with painkiller abuse. Mild side effects include nausea, vomiting, and diarrhea, usually caused by the way the drug interacts long term use will cause liver and kidney problems.

Acetaminophen is one of the very few painkillers considered generally safe to use during pregnancy. A new study, however, suggests it may not be so safe after all, after identifying a link between prenatal exposure to the drug and symptoms of autism and attention deficit hyperactivity disorder.

B complex vitamins

Mild upset stomach or flushing may occur. These effects are usually temporary and may disappear as body adjusts to these products these effects persist or worsen in some patients.as symptoms of a serious allergic reaction, including: rash, itching/swelling (especially of the face/tongue/throat), severe dizziness, trouble breathing A very serious allergic reaction to this drug is rare. The practice of self-medication in our study was common and often inappropriate and this high prevalence is a cause of concern. Education and proper information about the drugs may go a long way in promoting responsible self medication.

Factors			
Health System	Prescriber / Dispensers		Patients
<ul style="list-style-type: none"> •Work place - heavy patient load. • Lack of enforced regulations. • Pressure of promotional activities • Lack of coordinatoin • Lack of monitoring and evaluation. <p>Ystem</p>	<ul style="list-style-type: none"> •Inadequate knowledge and skills. • Lack of evidence-based practice on medicines . dispense. • Lack of medication information. • Lack of Continuous Professional Development (CPD). 		<ul style="list-style-type: none"> •Patient/relatives demands / expectations. • Wrong health beliefs. • Cultural practices. • Lack of health education
Problems			
Polypharmacy: use of	Overuse of antibiotics	Non compliance with	Self-medication.

too many medicines without justification	and injections	Self-medication3. guidelines	
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Consequences				
Prevalence of antimicrobial resistance (73%)	Medicines stock outs	Eroded patient confidence in health system	ADR	Loss of public and personal resources

Prescribing of medicines when no medicine therapy is indicated, e.g. antibiotics for viral upper respiratory infections.

The use of the wrong medicine for a specific condition requiring medication therapy, e.g. antibacterial in childhood diarrhea instead of ORS.

The use of medicines with doubtful/unproven efficacy, e.g. use of antimotility agents in acute diarrhea.

Failure to provide available, safe, and effective agents, e.g. failure to vaccinate against measles or tetanus.

The use of correct medicines with incorrect administration, dosages, and duration, e.g. use of IV metronidazole when suppositories or oral formulations would be appropriate.

The use of unnecessarily expensive medicines, e.g. use of a third generation, broad spectrum antimicrobial when a firstline, narrow spectrum, agent is indicated Many studies have found that various numbers of medications are associated with negative health outcomes, but more research is needed to further delineate the consequences associated with unnecessary drug use for long term .

Health Care professionals should be aware of the risks and fully evaluate all medications at each patient visit to prevent poly pharmacy from occurring.

Eighteen studies examined the consequences associated with poly pharmacy. Patients are at an increased risk of receiving an inappropriate medication and having an adverse drug reaction (ADR), which may impact a patient's adherence to his or her medication regimen. Polypharmacy has also been reported to increase the risk of geriatric syndromes and morbidity/mortality.

Inappropriate Prescribing:

Studies have shown that the use of multiple medications increases the risk of inappropriate prescribing. Hanlon et al found that both the number of prescription medications increased the risk of inappropriate prescribing as defined by the MAI in frail elderly veterans. A cross-sectional study in 786 patients (mean age, 78 years) receiving home health care reported that polypharmacy increased the risk of potentially inappropriate medications, as defined by the Beers criteria, and the risk of potentially dangerous drug interactions.

A study by Larson et al showed an increased risk of cognitive impairment with multiple medications. A study of Ruby et al found that the use of multiple medications with urologic activity increased the risk of urinary incontinence

They are usually on multiple drugs which in itself can account for increased incidence of adverse drug reaction. Care of the elderly in India began in 1973 and with the efforts of physician devoted to the cause of the elderly, Geriatric society of India was born in 1979.

Many reviewed studies have stated people using the accepted medicines by the WHO for minor ailments as Self medication and highlighted if they have used the old prescription for the same symptoms again as a reason for SM and instructed to ban or take regulatory steps in conclusion.

SM is an area of concern for public and interest for the researcher. As growing interest in the field of SM is increased, proper-guided data are needed for the aspirants to conduct research

One study suggest that use of multivitamins is associated with lower risk of colorectal adenoma, even with relatively short duration of use.

20 years or more of multivitamin use was suggestive of a 20% lower risk of colorectal adenoma.

Patients which suggests the need to educate the patients about proper and rational use of medicines.

It was also found that patients did not comply with the exact dose & duration with 30% prescribed medicines. In Rohtak, India, 59% housewives did not adhere to instructions given by the prescriber regarding dose, frequency of administration and duration of treatment.

There remains a major role of health care professionals at all levels right from doctors, pharmacists, nurses to health care workers in increasing awareness of general population on appropriate use of drugs. Analgesics for arthritis for rheumatological illness CKD, Analgesic nephropathy Acute Tubular necrosis. Sedative for CAD pts which prescribed initially sometimes continued for life long pt already in depression and continue to be in the state of sedation

Excessive drugs damages the intestinal flora.

Instead of taking multivitamin b on long term basis we Can advise to take fruits, Vegetables, and teach about dietary vitamins are more important than in tablet form

Prolonged use of antibiotics produce drug resistance major social problem MRSA, VRSA...Prescription of high dose of statin liver enzymes to be monitored Long term use of Benzodiazepam results in disinhibition, impaired concentration and memory, depression, sexual dysfunction, Sometimes withdraw symptoms also problems.

Doctors should master the art of prescription writing with essential drugs from top and less essential as follows 1,2,3,... and advice the patients not to stop at least the initial essential drugs. Periodical drug prescription auditing is a must and drugs for more than 3 months to be avoided patients should be warned of prolonged use of drug and its complications, by IEC activities, by displaying boards in out patient departments.

Conclusion

Regular prescription audit is NEED OF THE HOUR to reduce drug burden, drug – drug interaction and drug - food interactions and to prevent prolonged usage of non essential drugs. Poly pharmacy can be avoided by sharing treatment goals and plans. To improve drug safety in this high-risk population, appropriate prescribing might be more important than simply reducing the number of prescribed drugs.

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