

Development of Hospital Formulary for Geriatric Patients: A Review

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Abstract: Providing the maximum safe and effective medication at the right time to the patient is the prime aphorism of all the health care setting. It can be done by the continuous updation and reviewing the informations about a medication. For hospital settings these informations can be authenticated and encompassed and it is known as hospital formulary. According to WHO hospital formulary is “a manual containing clinically oriented summaries of pharmacological information about selected drugs” [2].Formulary enumerating is an evidence based system which helps the physician to find out the correct medication with accurate dose determination. Such type of prescribing is known as rational prescribing. Geriatric patients are the patients who are in the age group of sixty five and above. So they have to experience a number of medical conditions together it is known as multiple co morbidities. As a result they have to administer so several medications together it is known as polypharmacy. It leads to increased burden of pills. The polypharmacy and inappropriate medications are the major route of medication errors in geriatric patients. The precise and up to date informations about the drugs used in such patients are necessary for achieving the therapeutic goal of improved patient safety and medication adherences.

key words: Hospital formulary, prescription, polypharmacy, medication errors.

I. INTRODUCTION

Hospital formulary is the record which contains all the clinically significant pharmacological information regarding drugs which are used in particular hospital settings in various departments. Drugs are the chemicals which are used in small amounts for the diagnosis, treatment or prevention of diseases. The arrangement of hospital formulary is one of the important responsibility of pharmacy and therapeutic committee, because it is highly important to achieve the concise knowledge about the all drugs which are used especially pharmacological classification, therapeutic classification, dose and dosage, warning and precaution, special population details, adverse drug reaction, contraindication, overdose and treatment etc. Patients were suffered from a number of medication errors including inappropriate medications, ineffective medication and also poor quality medicines. The formulary manual may also include administrative and regulatory statistics pertaining to the prescribing and dispensing of drugs. It helps to control the inventory of the product, check and assure the alternatives used, ensure presence of safe and efficacious drugs. Hospital formularies are widely acknowledged and there is evidence

that a restricted drug policy can initially reduce cost. On the first decade this formulary started their journey as a assortment of commonly prescribed pharmaceutical preparations. Over time the hospital formulary was adopted to incorporate the detailed information on the increasing number and diversity of medicines.

Geriatric patients are the population having age group of sixty five and above. As mentioned above they have number of clinical conditions like diabetes mellitus, chronic kidney failure, hypertension etc. Together it is known as multiple co morbidities. So they are forced to take several medications for maintaining their normal day to day life. More exactly leads to patient non compliances and to lethal medication errors .Because in case of kidney failure patients, the physician have to adjust the dose according to severity of the condition or it leads to patient casualty. Some drugs are extremely contraindicated to certain type of patients, these should be thoroughly checked.

The studies show that there is 3-7 times greater incidence of ADR's in the elderly as compared to the age group 20-29 years. Up to 30% of drug in take may result in ADR's contributing to 10% OF hospital in elderly [5]. According to population study, the number of people with age group of greater than sixty five years of age will reach 10.7% of total population if India by 202[8]. Similarly medical conditions are also be elevated. In order to achieve a common goal of improved patient safety and medication adherences, the physician or the person who directly interact with patient and medications should possess a vast knowledge about all the clinical and pharmacological aspects related to a drug. Especially includes the adverse drug reactions, drug interactions detection, dose and dosage form adjustments. These goals can be obtained by preparing and maintaining a formulary publication.

II. METHOD

The hospital formulary can be prepared for a local health care setting with purpose of comprised or consisted knowledge about all the drugs which are used in various departments of the hospital. The preparation of the hospital formulary can be initiated with step of approval from the pharmacy and therapeutic committee (PTC). Pharmacy and therapeutic committee is a group of members including physicians from various departments, a nursing staff mainly head of the

infection control, head of pharmacy departments or chief pharmacist, a pharmacologist, a laboratory technician, if not a clinical microbiologist, a member from hospital record department and various other administrative and finance department members. They segregate the decision from all the clinicians working at different departments and also other mentioned department. The PTC members prepare the list of drugs which are used in different departments according to the suggestion of physicians. If there is any suggestion forwarded by a physician about listing of medication and also the deletion or insertion drugs should be discussed with the PTC members along with required medical cases. The preparation of newer edition of hospital formulary starts with approval of PTC. Then collect the WHO model list and national list of essential medicine of recent year and compare it with prepared formulary. The WHO model list of essential medicines(WMLEM) contains detailed information about the medications, dosage, adverse effects, contraindication, and warning for medicines included in the WMLEM, together with summaries of recommendations on their appropriate use[2]. One important point in this designing of the formulary is the up to date knowledge about the banned drugs in India, such medications should not be entered in the formulary. As a third step of the preparation of formulary, collect the data regarding to drug including, generic name, pharmacological classification, therapeutic classification, dose and dosage forms, warning and precautions, adverse drug reactions, drug interactions, drug overdose and treatment, drug use in special population. The designing of the formulary is very important because the documentation should be user friendly specifically should be easy to handle. Here the drugs are arranged in their alphabetical orders. It helps to find out specific drug easily there is no need to find out the pharmacological classification of the same drug. Apart from this different type of arrangement of drugs are there. That is based on pharmacological classifications, based on anatomical sites like gastrointestinal or respiratory system, central nervous system. In such designing of formulary, the user should have a vast knowledge about the system of the body in which the drug elicits its action. British national formulary is arranged in the order of therapeutic classification of the drugs and it can be taken as the primary reference. Formulary for a specific hospital setting includes only the drugs which are approved by the pharmacy and therapeutic committee of the particular hospital settings. The drugs which are banned from India should be completely omitted.

III. RESULT

Development of the hospital formulary for geriatric patients is a prospective study. In which the study is conducted with present available data. Revising of the formulary can be done by specific periods in each year. If any addition or deletion is there, should be produced as formulary manual. The publication of the prepared formulary can be done only after the continuous cross checking by all the PTC members along with the clinicians of various departments. If any suggestions

are raised by a committee member specifically prescribers, should be discussed with PTC chief pharmacist for the inclusion or exclusion of the datas. The hospital formulary for geriatric patients includes various contents as other official publications. It include

Details of pharmacy and therapeutic committee members.

- ❖ Acknowledgement
- ❖ Table of contents
- ❖ General advices to the prescribers.
- ❖ Approved abbreviations used in medication chart.
- ❖ Abbreviations for frequency of administrations.
- ❖ Common error prone abbreviations.
- ❖ Monograph / drug profile.
- ❖ Other brands available(addition)
- ❖ Drugs excluded from formulary(deletion)
- ❖ Glossary or index.

The datas entered in the formulary should be up to date and precise. It can be used as a reference material for physicians for the drug and dose determination. Some times the price rate data can also be added.

IV. DISCUSSION

Kaur R J, Misra A Ambwani S R: "Hospital formulary concept: Is India ready and how it will benefit from it?" jbcinpharma.2017;8: 208-10. A number of reference materials are available to collect the datas about the designing, developing and maintainance of the formulary. They introduce the topic with providing a vast idea about the formulary system. Preparation of the formulary will help to limit the drug budgets, identification of the available alternatives, checking improper or inappropriate medications, accurate drug dosing etc. It explain about the preparation and management of the hospital formulary in step wise manner. Actually it is a four step process, starting from the pharmacy and therapeutic committee approval. It also seek the advantages and disadvantages of preparing an hospital formulary along with the hurdles of implementing the formulary system in India. The formulary system is a multidisciplinary activity as well as a evidence based process. Not only it help to decision making to prescribers but also help to ensure high quality medicines eventually leads to effective health management and decreased burden of diseases.

Shashikala CW, Ganachari MS, Praveen T: Development and implementation of hospital formulary Sep 2013: IJOPP; 5(3):8-14.

This is a research article provide the detailed knowledge about the development and implementation of the hospital formulary. They abstracted the contents with WHO model definition of the formulary. The formulary is a continually revised compilation of pharmaceuticals (plus important ancillary information) that reflect the current clinical judgement of medical staff. Guiding principles for development of formulary are well explained here. This

articles mentioning the criterias which we have to follow for the addition and deletions of datas. For deleting Information or a drug all the associated informations should also be excluded. For addition of a drug to the newer edition of formulary, the physician should be discussed it with the committee members along with the clinical evidences. They concluded the article by impact of implementing the hospital formulary in a health care settings.

John Feely, Robert Chan, Lelia Cocoman, Kenneth Mulpeter, Petrica O Connor: Necessity of the continuous intervention in the preparation of hospital formulary;BMJ.300 sep 2019:28-30.

Intervention is achieved by feedback of prescribing pattern habits, peer comparison and informations regarding the drugs. They conduct an experiment for the study of number of drugs prescribed before and after the implementation of the formulary. They plot a line graph of Annual drug bill (£m) v/s year. It is found that there was a projection of graph showing increased number of bills before the implementation of the formulary. But after the introduction, the elevation get flattened and then slight elevation. These results are obtained by the both prospective and retrospective study conducted during continuous seven years.

Timothy W Cutter and Thomas R Clark: General principles of geriatric drug therapy: Journal of contemporary pharmacy practice; March 2018:1-6(published online).

Is also a review article explains about the various clinical conditions that affecting the geriatric patients. The topics discussed here is the multiple co morbidity, polypharmacy inappropriate medications and patient non adherences. The explanations of each of the topic with appropriate examples are really advantagable to the readers. They illustrate the all prescription related problems in geriatric patients. The authors try to explain with a quotes of “*ANY SYMPTOM IN AN OLDER ADULT SHOULD BE CONSIDERED A DRUG SIDE EFFECT UNTIL PROVED OTHERWISE*” [4] by Jerry Gurwitz. The medication errors can be estimated by the Beers criteria or other guidelines. The article is concluded by explaining that there will be high risk of producing adverse drug events in such population. So pharmacists are in a particularly good position to make significant impact on the quality of care delivered to older adults.

Nachiket Bhavshaikh, Sangita Sukumaran, Upal Vyas: Drug prescribing pattern in elderly patients in a tertiary level hospital: IJBClinPharma.April 2017;6(4):759-64.

Is an original research article of a prospective study of prescribing pattern should followed in case of geriatric patients. Elderly people have multiple co morbidities and leads to potentially inappropriate medications (PIM). Elderly patients show various changes in the physiological and pharmacodynamic parameters. So the dosage adjustment is inevitable in case of geriatric patients. Early detection of potentially inappropriate medications, possible adverse drug reaction and drug interactions can reduce the patient mortality and morbidity. This study is conducted with 576 prescriptions of elderly patients having age group above 65 years. Here they consider outpatients and in patient department prescription. They determine the medication error by Beers criteria and provide various tabular and graphical representations.

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