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A REVIEW ON DRUG UTILIZATION EVALUATION OF ANALGESICS

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ABSTRACT

Drug Utilization Reviews (DUR), also referred to as Drug Utilization Evaluations (DUE) or Medication Utilization Evaluations (MUE), are defined as an authorized, structured, ongoing review of healthcare provider prescribing, pharmacist dispensing, and patient use of medication. DURs involve a comprehensive review of patients' prescription and medication data before, during, and after dispensing to ensure appropriate medication decision making and positive patient outcomes. Studies on the process of drug utilization focus on factors related to prescribing, dispensing, administering and taking of medication, and its associated events. Drug utilization data are available from databases- computerized or otherwise. Importance of drug utilization studies in pharmacoepidemiology has been increasing due to their close association to other areas like- public health, pharmacovigilance, pharmacoeconomics and pharmacogenetics. This review article highlights various aspects, scope, types and importance of DU studies.

INTRODUCTION

According to WHO drug utilization study is about marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical social and economic consequences.[1] To improve the therapeutic advantage and decrease the untoward effects, time to time evaluation of drug utilization pattern enables to make suitable and rational modification in the current prescribing trend.[2] So the auditing of prescription pattern

involves monitoring of prescribers nature of drug prescription in order to make medical care rational and cost effective.[3] Hence the drug utilization evaluation (DUE) studies becomes one of the potential tools in evaluation of health system. Drug utilization studies focuses on factors related to prescribing, dispensing, administering and taking of medication and associated events.[4] Analgesics are defined as the drugs that relieve pain without blocking nerve impulse conduction or markedly altering sensory function.[5] A particular analgesic dose that produces successful pain relief in one patient may generate bearable adverse effects and insufficient pain control in another person. As some many innumerable analgesics are available in the todays market which may often lead to irrational prescription behavior.[6] Thus DUE plays a key role in helping the healthcare system to understand, interpret and improve the prescribing, administration and use of medications. The principal aim of DU research is to facilitate rational use of drugs, which implies the prescription of a well documented drug in an optimal dose on the right indication, with correct information and at an affordable price. It also provides insight into the efficacy of drug use.[7]

History

Drug utilization evaluation is also known as Drug utilization review (DUR) or Medication utilization evaluation (MUE). DUR studies developed in mid 1960's in Northern Europe and UK. The fist research work of DUR was done by Aurthur Engel in Sweden and Peter Siderius in Holland. According to World Health Organization (WHO), drug utilization evaluation is the marketing, distribution, prescription and use of drugs in society with special prominence on the resulting medical, social and economic consequences.[7,8]

Drug use evaluation (due) or du studies is an ongoing, authorized and systemic quality improvement process, which is designed to

- Review drug use and/or prescribing patterns
- Provide feedback of results to clinicians
- Develop criteria and standards which describe optimal drug use
- Promote appropriate drug use through education and other interventions. They observe the patterns of drug use with current recommendations or guidelines for the treatment of a certain disease.
- They provide feedback of drug utilization data to prescribers.
- They relate the number of cases of adverse effects to the number of patients exposed. If it is possible to detect that the reaction is more common in a certain age group, in certain

conditions or at a special dose level, then information on proper use of drug can be improved such as indications, contraindications, appropriate dose etc. so that withdrawal of drug may be avoided.

- They evaluate drug use at a population level, according to age, sex, social class etc.
- They include concept of appropriateness that must be assessed relative to the indication for the treatment, concomitant diseases (that might contraindicate or interfere with chosen drug therapy) and the use of other drugs (interactions). Thus they document the extent of inappropriate prescribing of drugs and also the associated adverse, clinical, ecological and economic consequences.[9,10]

Types of due

- **Drug focused:** Drug utilization evaluation of a single drug (e.g. Ceftriaxone) or a class of drugs (e.g. Cephalosporins) is tested.
- **Indication focused:** Evaluation of drug or drugs that is used for specific indication is examined for their use.
- **Quantitative:** It includes collecting, organizing and estimation of drug usage in figures in the pattern of drug acquisition, prescribing, dispensing, consumption and distribution.
- **Qualitative:** This type of DUE helps in evaluating the quality of drug therapy and its outcomes by comparing practice with predetermined criteria and standards.[10,11]

Classification of drug utilisation evaluation

- **Prospective DUE**

A review has done prospectively by evaluating the patient's pre-planned drug theory prior to medication described. This type of DUR paves the way to a pharmacist to evaluate the dosage of prescription drugs, the interaction of drugs and to clear the problems associated with drug use.

- **Concurrent DUE**

It is performed during therapy and continuous monitoring of treatment with medicines to attain positive outcomes from the patient.

- **Retrospective DUE**

It is a review of treatment subsequent to medication administration by a patient. The aim of this review is to find the trends in prescribing, dispensing and advertising about medication, thereby helps to prevent duplication.[11,12]

Steps in establishing a due program

Drug utilization evaluation process is divided into four phases:

Phase 1: Planning

1. Develop a DUR Committee.
2. Write policies and procedures.
3. Describe about the departments of the hospital, where drugs are utilized (intensive care unit, radiology, surgical department, medical department).
4. Select specific drugs for possible inclusion in the program.
5. Assess resources available for criteria development, data collection, and evaluation.
6. Consider the indications, dosing, dosage form, frequency of drug used to monitor and evaluate.
7. Select criteria and establish performance thresholds.
8. Develop the methodology for data collection, evaluation and create a schedule.
9. Educate hospital staff about DUE study and current criteria.

Phase 2: Data Collection and Evaluation

10. Start the data collection in a proper way.
11. Evaluate the collected data and determine if drug use problems exist.

Phase 3: Intervention

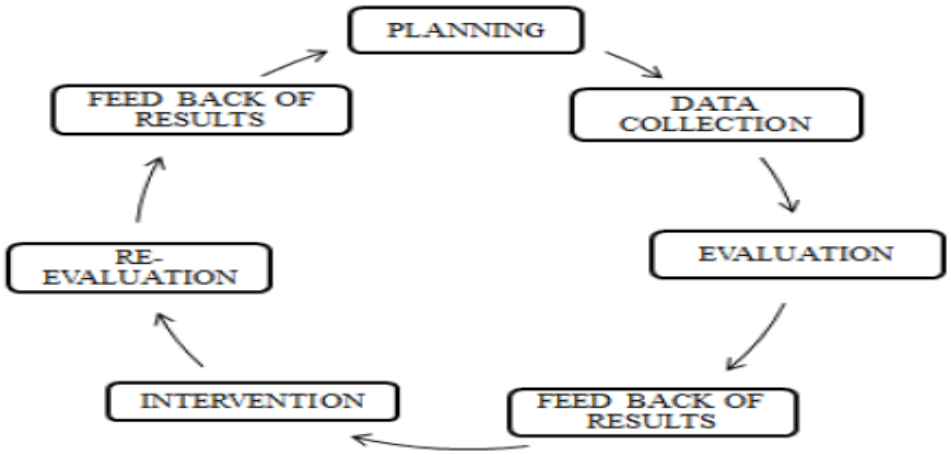
12. Send the results to hospital staff.
13. If a drug use problem was found, design and implement interventions.
14. Collect new data on problem drug to determine if drug use has improved as a result of the intervention.
15. Disseminate results of re-evaluation.

Phase 4: Program evaluation

16. Evaluate all DUR program activities at the end of the year, and plan the new activities for the upcoming year.[13,14]

Due cycle

The DUE cycle is a continuous cycle and it is most worthy if the cycle is conducted rather than performing various steps. The major phases of DUE cycles are,



Scope of drug utilization evaluation

Studies on the process of drug utilization focus on factors related to prescribing, dispensing, administering and taking of medication, and its associated events, covering the medical and non medical determinants of drug utilization, the effects of drug utilization, as well as studies of how drug utilization relates to the effects of drug use, beneficial or adverse effects.[14,15]

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the extent of inappropriate prescribing of drugs and also the associated adverse, clinical, ecological and economic consequences.[16,17,18]

Importance of due

DUE programs play a key role in helping managed health care systems understand, interpret, and improve the prescribing, administration, and use of medications. Clinical Pharmacists play a key role in this process because of their expertise in the area of pharmaceutical care. DUEs afford the managed care pharmacist the opportunity to identify trends in prescribing within groups of patients such as those with Chronic Diseases such as HIV, Cancer, asthma, diabetes, or high blood pressure etc. Pharmacists can then, in collaboration with other members of the health care team, initiate action to improve drug therapy for both individual patients and covered populations. DUEs serve as a means of improving the quality of patient care, enhancing therapeutic outcomes, and reducing inappropriate pharmaceutical expenditures, thus reducing overall health care costs.[18,19]

DUE studies are integral in helping to understand, Interpret and improve the prescribing administration and use of medication. DUE programs helps to provide Physicians with feedback on their performance and Prescribing behavior as compared to standard protocols. DUE information helps to improve prescribing Formulary compliance and patient compliance. DUE helps to prevent adverse Drug reactions, toxicity, medication errors, drug-disease Contraindications, drug-allergy interactions, drug-drug Interactions and therapeutic duplications. It encourages the improvements in medication use Process and it also identifies the area in which further Information and education for health care professional may be needed.[20,21]

CONCLUSION

It shows that among the Analgesics prescribed in the study population Ketorolac was found to be the most common and Diclofenac was commonly prescribed for postoperative pain relief, both in monotherapy and combination therapy. Tramadol opioid was also used for severe pain relief and then shifted to NSAIDs. The prescription pattern was not rational related to more use of brand name rather than generic name. It concludes that DUE analysis should carry out frequently in order to minimize the medication therapy related problems during the course of treatment.

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