Appraisal of Drug Utilization Pattern in Intensive Care Unit: A Retrospective Study

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Abstract: *The study aimed to assess the prescribing trends in the intensive care unit of a tertiary care hospital. A retrospective cross - sectional study of 150 patients attended to ICU in tertiary care hospital from February 2019 to June 2019. Of 150 pts considered into the study, 54.7% were males and 45.3% were females. More number of patients (36%) were prescribed with 4 - 6 drugs, followed by 24% of patients with 7 - 9 drugs, 22% with 1 - 3 drugs, and 18% with 10 - 12 drugs. The most commonly prescribed drugs are NSAIDs (38%), followed by GI drugs (19%), CNS drugs (13%), CVS drugs (11%), anti - infective drugs (10%), and others (9%). Of all these 51% of drugs were administered by oral route, 38% of drugs by the parentral route. Our study concludes that NSAIDs were the most frequent class of drugs administered to patients. The highest number of drugs was prescribed for gastrointestinal diseases, followed by neurological and cardiovascular diseases. The results of the present study were attempts to highlight the importance of strategies that have to be implemented to optimize medication use at the ICU.*

Keywords: Drug Utilization, ICU, NSAIDs

1. Introduction

The prescription analysis is a very good tool to analyse the prevailing disease pattern and drug use in a community. Irrational prescription leads to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient along with higher costs [1]. Prescription analysis helps in promoting rational use of drugs in which the right drug is prescribed for the right condition in right dose and duration and gives information about any dispensing errors [2]. Drug utilization research is a component of medical audit that plays an important role in pharmacoepidemiological studies. This is because it reports the extent, quality, determinants and outcome of drug exposure. In addition, it helps in assessing rational usage and cost control of various medications used in the hospital [3].

Drug utilization has been defined as the marketing, distribution, prescription, and use of drugs in a society with special emphasis on the resultant medical and social consequences [4]. The recent changes in the drug prescribing pattern, increased concern over adverse drug reactions and escalation in the drug pricing have increased the importance of drug utilization studies [5]. A periodic evaluation of drug utilization patterns has become necessary to promote rational drug use by increasing the therapeutic efficacy while decreasing the occurrence of untoward adverse effects. To promote rational use of drugs in developing countries, international agencies such as the World Health Organization (WHO) and the International Network for the Rational Use of Drugs have evolved standard drug use indicators. Analyzing the pharmaceutical prescribing practices by health providers is one of the three - drug use indicators developed to measure the rational use of drugs [6].

Problems associated with drug prescriptions are not uncommon world - wide. These include mainly medications errors and adverse drug events. Factors involved in drug prescription errors include polypharmacy, lack of sufficient pharmacological knowledge, errors in patients' charts or documentation by nurses, inadequate pharmacy service, being a female, age >65 years, renal excretion of drugs, drugs with narrow therapeutic index and the use of anticoagulants or diuretics [7].

In the emergency department, doctors face urgent and severe cases that need to be treated quickly with high quality. This creates a challenge for physicians to initiate and select appropriate drugs for the patient. Furthermore, the unique operating characteristics of the Intensive Care Unit make the Emergency Department vulnerable to medical errors including medication errors and adverse drug.
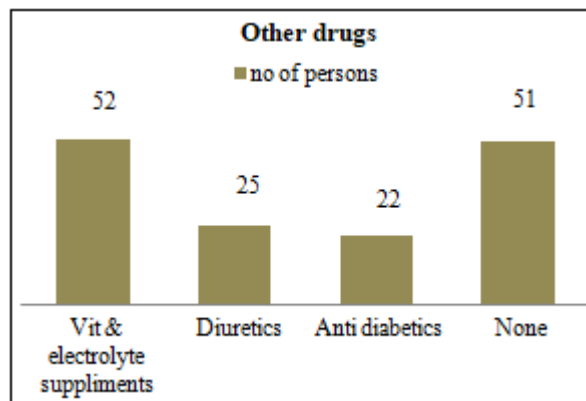
2. Methods

This was a retrospective cross - sectional study of 150 patients who attended to intensive care unit in our tertiary care hospital from February 2019 to June 2019. Patients of all age groups, both males and females of different diseases admitted to ICU were included in the study and the patients from other units, pregnant women and died patients were excluded. Data was analysed by using SPSS software.
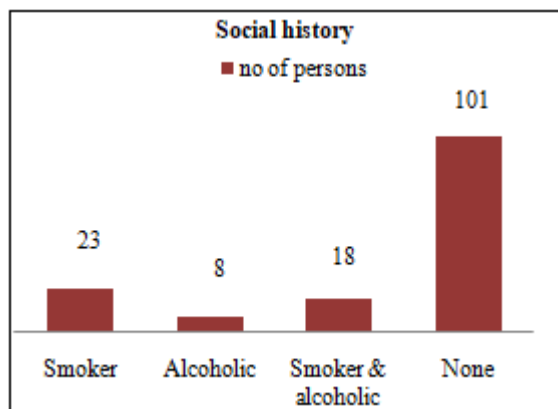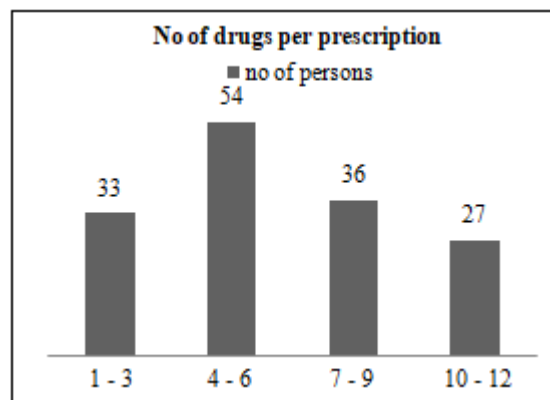
3. Results
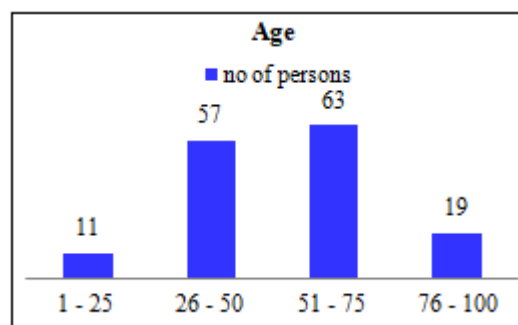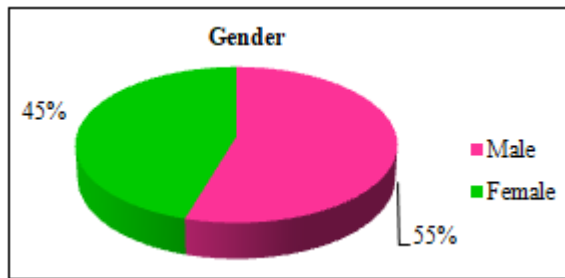
Demographic details reveal that the patients of age between 51 - 75 were more (63 patients) followed by 26 - 50 (57 patients), then 76 - 100 (19 patients) and 1 - 25 (11 patients). This describes the effect of the age factor on disease distribution.
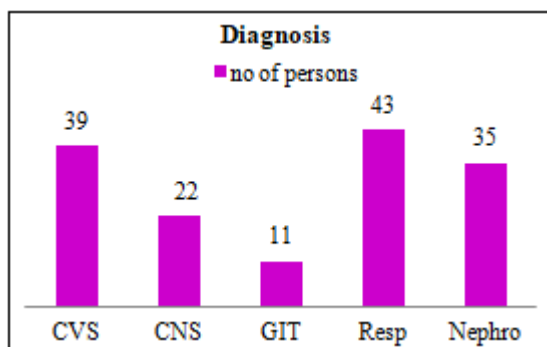

Analysis of 150 patients approached to intensive care unit reveals that prevalence was more in males (55%) than females (45%).

According to social history, it was found that 23 patients (15.33%) were smokers, 8 patients (5.33%) were alcoholics, 18 patients (12%) have both smoking and alcohol habits and 101 patients (67.33%) doesn't smoke or consume alcohol.

The most common diagnosis according to the system among 150 patients included in the study is Respiratory system (43 patients i.e. .28.66%), followed by Cardiovascular system (39 patients i.e. .26%), then nephro (35 patients i.e. .23.33%), Central Nervous System (22 patients i.e. .14.66%) and GastroIntestinal System (11 patients i.e. .7.33%).

Most of the patients were prescribed GIT drugs, these are the more prevalent drugs prescribed (in 97.33%), followed by Antibiotics (94%), NSAIDs (55.33%), Anti - asthmatics (44%), CVS drugs (27.33%), and CNS drugs (16%).

Other drugs prescribed include vitamin and electrolyte supplements (34.66%), antidiabetics (14.66%), and Diuretics (16.66%)
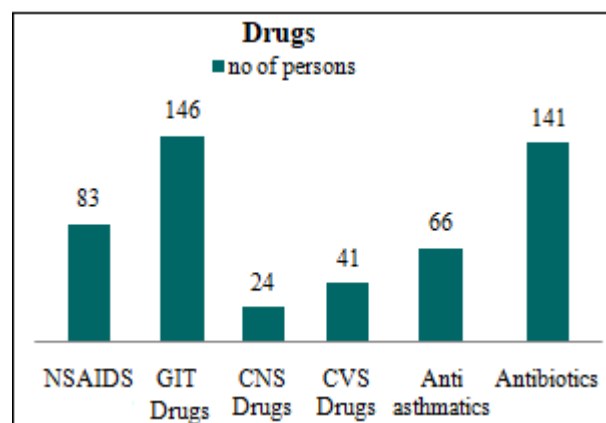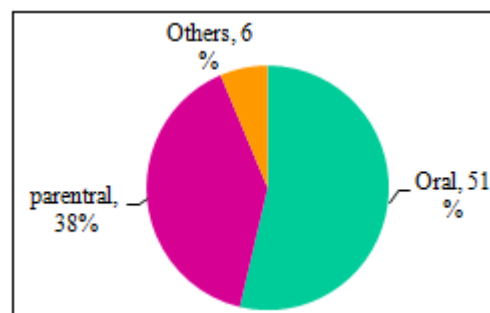

The majority of patients (36%) were prescribed with 4 - 6 number of drugs, followed by 7 - 9 number of drugs (24%), 1 - 3 number of drugs (22%) and other by 10 - 12 number of drugs (18%).

Route of administration of the majority of drugs was by oral route, followed by parenteral administration and the remaining by other routes of administration.

4. Conclusion

NSAIDs were the most frequent class of drugs administered to patients. The highest number of drugs was prescribed for GI diseases, followed by neurological and CV diseases. The results of the present study were attempts to highlight the importance of strategies that have to be implemented to optimize medication use at the ICU.

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