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PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1100982>Available online at: <http://www.iajps.com>**Research Article****A PROSPECTIVE OBSERVATIONAL STUDY ON DRUG  
UTILISATION EVALUATION OF HIGH ALERT DRUGS USED  
IN A TERTIARY CARE HOSPITAL****Soumya Shaji<sup>1\*</sup>, Christy Sara Andrews<sup>1</sup>, Adith Pillai<sup>1</sup>, Alwin Jose<sup>1</sup>, Rinto Paul Raju<sup>1</sup>,  
Robin Jose<sup>1</sup>, S. Hemalatha<sup>2</sup>**<sup>1</sup> PharmD Interns, Department of Pharmacy Practice, M Pharm, Department of Pharmacology,  
Nandha College of Pharmacy, Erode.<sup>2</sup> M. Pharm, Assistant Professor of Nandha College of Pharmacy, Erode.**Abstract:**

**Background:** High alert medications are drugs with narrow margin of safety and require heightened vigilance. Although any drugs used improperly can cause harm, high-alert medications cause patient harm more likely when used in error and the harm they produce is likely to be more serious and leads to patient suffering and additional costs associated with care of these patients.

**Objective:** To ensure safe medication practices and to eliminate medication errors that cause harm to the patients and standardize high-alert medication-handling practices

**Methodology**

It is a prospective observational study conducted in a tertiary care hospital for period of 3 months. 75 patients who met the inclusion criteria were enrolled in study and conducted by using a high alert medication audit tool

**Result:** Among the high alert drugs collected, it was observed that anti-thrombotics [34.57%] was found to be highly used as it place an effective role in orthopaedics and cardiac cases followed by opioids and narcotics 24.77%.

**Conclusion:** Educational classes should be provided for all medical professionals who handling these medications thus medication errors can be reduce thus the significant injury cause by this drug can be prevented.

**Keywords:** High alert medication, patient harm, educational classes.

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**INTRODUCTION:**

Medication errors are significant and often preventable healthcare problem. Although many medication errors may not cause harm to patients. Some medication is known to carry a higher risk of harm than other medications and errors in administration of these medications can cause severe clinical outcomes [1]. High-alert medications are defined as medications which have the highest risk for causing injury when misused. These medications have narrow therapeutic indexes or small margins of safety, that is, there is a small difference between a therapeutic dose and a harmful dose [1,11]. High-alert medications include high and low frequency medications such as insulin, OHA, heparin, warfarin, narcotics, neuromuscular blocking agents, sedatives and chemotherapy agents. High-alert medications are those that have the potential to cause significant patient harm when administered in error [11].

In fact, researchers have reported that 2/3 of emergency admissions for adverse medication reactions were related to warfarin, insulin, oral antiplatelet agents and oral hypoglycemic agents [6,11]. High alert drugs must be double checked before they are prepared, dispensed, and administered [1]. Clinical pharmacist plays an important role in ensuring safety of high alert drugs by using an audit tool for high alert drugs. After intending high alert drugs, senior nurses have to

counter sign the high alert medications. The institute of safe medication practices[ISMP] has 19 categories and 14 specific medications in its list of high alert medications [1,6]. It recommends that high alert medications should be packed differently, stored differently, prescribed differently and administered differently than others [1]. This list is periodically updated. To enhance patient safety, it is important that healthcare facilities review the ISMP High-Alert Medication List routinely and compare facility based occurrence reports to designate those medications that should be included the healthcare institutional policy [2].

**METHODOLOGY:**

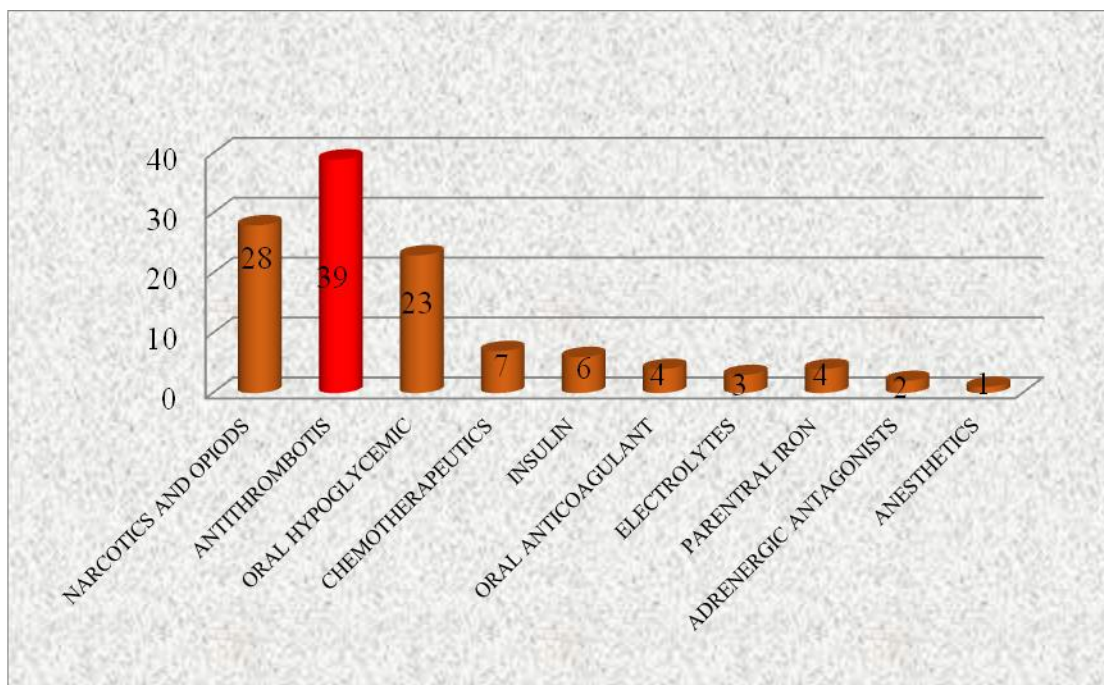
- Study site-Fortis Hospital, Bangalore.
- Study period- 2 months
- Sample size-75
- Study tool : High alert medication audit tool

## Inclusion criteria

- Inpatients receiving high alert medications from ward.
- Patients with age group above 20 years

## Exclusion criteria

- Outpatients
- ICU and OT patients.
- Pediatric, neonates.

**RESULT AND DISCUSSION:**

**Fig. 1: Distribution based upon the class of drugs**

According to the high alert list in the hospital, the categories had shown in Fig. no 1. Were collected. Amongst the mentioned categories, it was observed that anti-thrombotics 34.57% was highly used followed by Narcotics 24.77% and oral hypoglycemics 20.35%. The least used were chemotherapeutics agents 6.1%, insulin infusions 5.3%, electrolytes 2.65%, parenteral iron 3.53%, adrenergic antagonists 1.76%, anesthetics .88%.

Among antithrombotics, Clexane was mostly used in cardiac and orthopaedics surgery. Clexane is a low molecular weight heparin. According to a study,

clexane is used as prophylaxis of DVT in CHF patients due to the high risk of thromboembolism. Without thromboprophylaxis, proven DVT occurs in 10% to 22% of CHF patients [4,5]. Clexane produced a 70-80% risk reduction for DVT in numerous studies without an increase in major bleeding in high risk orthopaedic patients and hence, was used extensively amongst the same [4,5].

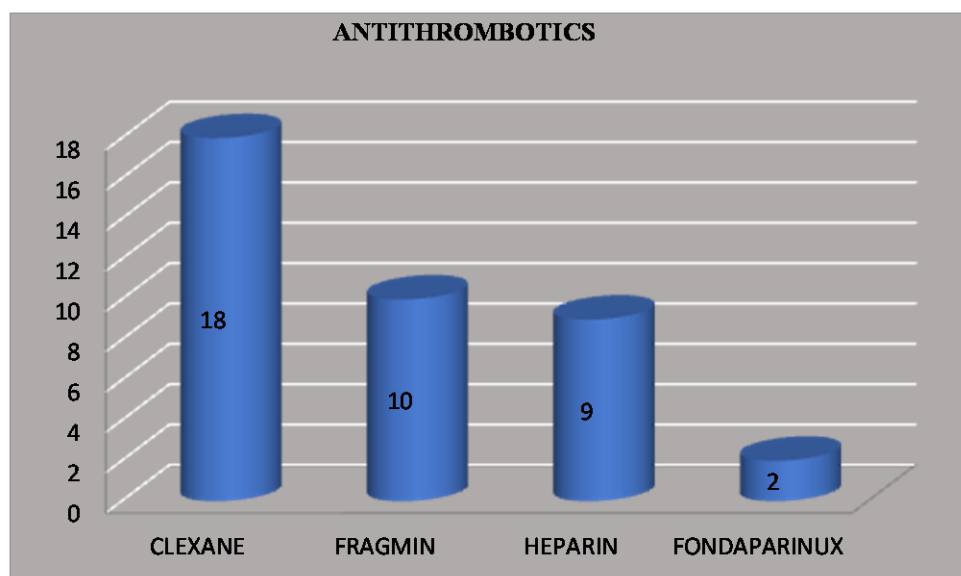


Fig. 2: Distribution of drugs in antithrombotics

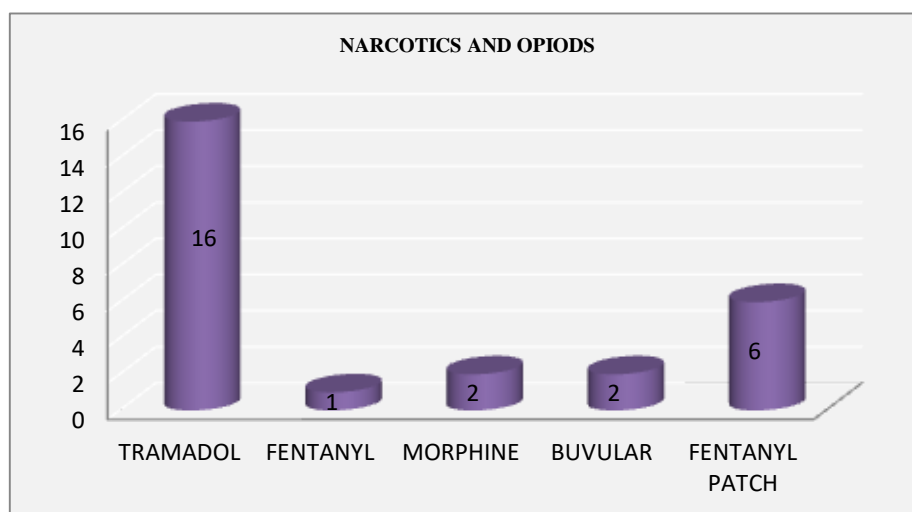


Fig. 3: Distribution of drugs in narcotics and opioids

Among narcotics ,tramadol was found to be highly used. Tramadol is an opioid analgesic and it is used to treat moderate to severe pain. It is mainly used in orthopaedics due to their intensive Pain, which is usually not relieved by NSAIDs and other analgesics. Tramadol was found to be effective for relieving pain in orthopaedics, thus its usage is higher in orthopaedics comparing to other analgesics [10].

#### Counter Signed

Among 75 cases, 41 were double checked and counter signed before administering the drug and 34 were not counter signed.

#### CONCLUSION:

High alert drugs have a very narrow therapeutic margin of safety and can cause severe injury to patients and hence required heightened vigilance and special precautions must be employed with their overall management [1]. All high alert drugs issued from pharmacy must be counterchecked in order to ensure its safety and accuracy [1]. In this study, antithrombotics [clexane] were found to be highly used in wards, as it plays an effective role in orthopaedics and cardiac cases followed by opioids and narcotics. Educational classes should be provided for all medical professionals who handle these medications thus medication errors can be reduced thus the significant injury caused by this drug can be prevented.

#### ABBREVIATIONS

OHA - Oral Hypoglycemic Agents  
 ISMP- Institute Of Safe Medication Practice  
 ICU- Intensive Care Unit  
 OT- Operation Theatre  
 CHF- Congestive Heart Failure  
 DVT- Deep Vein Thrombosis

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