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A Study on the Usage of NSAIDS and Gastroprotective agents in an Orthopaedic Department

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ABSTRACT

NSAIDs remains as a major choice for analgesic (pain-killing),antipyretic (fever-reducing) and in higher doses as an anti-inflammatory agent in orthopaedics. The objective of the present study was to conduct a prospective observational study to collect data's of patients those who were admitted in orthopedic department and thereby have assessment on the usage of NSAIDs and gastroprotective agents. A total of 68 subjects were included in the study, 57.35% (n=39) were male and 42.6% (n=29) were female. Maximum number of patients who received NSAIDs were in age group of 41-50 i.e.,26.4% (n=18), followed by 20.50% (n=14) 31-40 age group and 16.1% (n=11) were in between 51-60 age group. Only 8.8% (n=6) of patients were above 70 years of age and prescribed with NSAIDs. NSAIDs were mainly prescribed as the supportive treatment of fracture 41.1% (n=28) followed by Spondylosis 26.4% (n=18), Osteoarthritis 13.2% (n=9) and Joint dislocation 11.7% (n=8) etc. Diclofenac 75% (n=51) was found to be the commonly prescribed NSAIDs followed by Piroxicam 16.1% (n=11), whereas the least prescribed NSAIDs was found to be Etoxicoxib 2.9% (n=2). The result revealed that 51.4% (n=35) of the patients underwent Dual therapy followed by 48.5% (n=33) with Monotherapy. In this study 76.4% (n=52) patients were prescribed with Parenteral NSAIDs whereas, 23.5% (n=16) patients with oral route of NSAIDs and 5.8% (n=4) with topical NSAIDs. Around 89.7 %(n=61)of patients were co-prescribed with gastroprotective agents (GPA). Pantoprazole and Rabeprazole were the most frequently prescribed GPA which were accounted by 38.2% (n=26) followed by Ranitidine 10.2% (n=7).67.2% (n=41) were administered in oral route followed by 32.7% (n=20) parent rally38.2% (n=26).

Keywords: NSAIDs, gastro protective agents, fracture, spondylosis, orthopaedics.

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INTRODUCTION

Nonsteroidal anti-inflammatory drugs, usually abbreviated to NSAIDs and also referred to as Nonsteroidal anti-inflammatory agents/analgesics (NSAIAs) or Nonsteroidal anti-inflammatory medicines (NSAIMs) are a class of drugs that provides analgesic (pain-killing), antipyretic (fever-reducing), and in higher doses, anti-inflammatory effects also[22]. PPIs such as omeprazole and lansoprazole are mainly advisable for the preventative treatment of NSAID-induced ulcers at this time, these drugs can be used for prophylactic treatment being greater than 90% effective at the least dose approved by FDA for prevention of both peptic and duodenal ulcers[27].H_2RBs such as Ranitidine and Cimetidine are the first line treating option against duodenal ulcers, even though Nizatidine has shown some proven effect for peptic ulcers in high risk patients[27]. The primary aim of this study was to conduct a prospective observational study in orthopedic department by collecting patient's data and thereby have an assessment on the usage of NSAIDs and gastro protectiveagents[27]. NSAIDs are mainly given for the conditions in orthopedic departments are Osteoarthritis, Rheumatoid arthritis, Mild-to-moderate pain due to inflammation and tissue injury, Low back pain, Inflammatory arthropathies (e.g., ankylosing spondylitis, psoriatic arthritis, Reiter's syndrome), Tennis elbow, Headache[22]. The study was based as a prospective observational study to attain comprehensive knowledge of prescribing trends of NSAIDs &gastro protective agents on orthopaedic department. Also to identify commonly prescribed categories of NSAIDs and gastro protective agents during the hospital stay and observe various dosage forms of NSAIDs and gastro protective agents during the hospital stay. The various clinical conditions treated in an orthopedic department and concomitant drugs prescribed were accessed.

MATERIALS AND METHOD

Study site

The study was conducted under the permission of Dr. sajith.V. M (Consultant Orthopaedician) at the department of orthopedics and also Mrs. Sabhareeja (Medical superintendent) in Welcare Institute of medical science at Palakkad.

Study period

The study was conducted over a period of five months from February 2014 to July 2014.

Study Design

The study was designed as a prospective observational study to collect various data of patients those who were admitted in an orthopedic department and thereby have a comprehensive

knowledge of usage of NSAIDs and Gastro protective agents in Orthopedics department.

Study Population

A total of 68 subjects were included as the prospective observational study.

Study criteria

Inclusion criteria

- All inpatients of the orthopedic ward prescribed with at least one NSAID.

Exclusion criteria

- Out-patients.
- Patients who were not prescribed with NSAIDs.

Development of patient data entry form

A specially designed data entry form was used for collecting patient details. It consists of Patient demographic details, Clinical diagnosis, medications etc.

RESULTS AND DISCUSSION

The study was carried out of at Welcare Institute of Medical Sciences over a period of five months from February 2014 to June 2014.During the entire period, a total of 68 patients were included of these, 57.35% (n=39) were male and 42.6% (n=29) were female [Table].

Gender Distribution

Gender	Number of Patients (n=68)	Percentage (%)
Male	39	57.35
Female	29	42.6

It is known that non-steroidal anti-inflammatory drugs usually will not increase the pain threshold in normal tissues, whereas the local anesthetics and narcotics action. These findings were similar to the findings[7, 8]. The patients were categorized according to their age group. Maximum number of patients who received NSAIDs were in age group of 41-50 i.e.26.4% (n=18), followed by 20.50% (n=14) 31-40 age group and 16.1% (n=11) were in between 51-60 age group. Only 8.8% (n=6) of patients were above 70 years of age and prescribed with NSAIDs. Similar studies conducted by Juno. J. Joel, Bincy Thomas. In 2013 revealed that maximum patients who received NSAIDs were in age group of 31-49 (41.8%) [2]. The study revealed that most of the patients, 51.4% (n=35) were admitted in hospital for 2 days followed by 14.7% (n=10) for 3 days. [Figure.1].

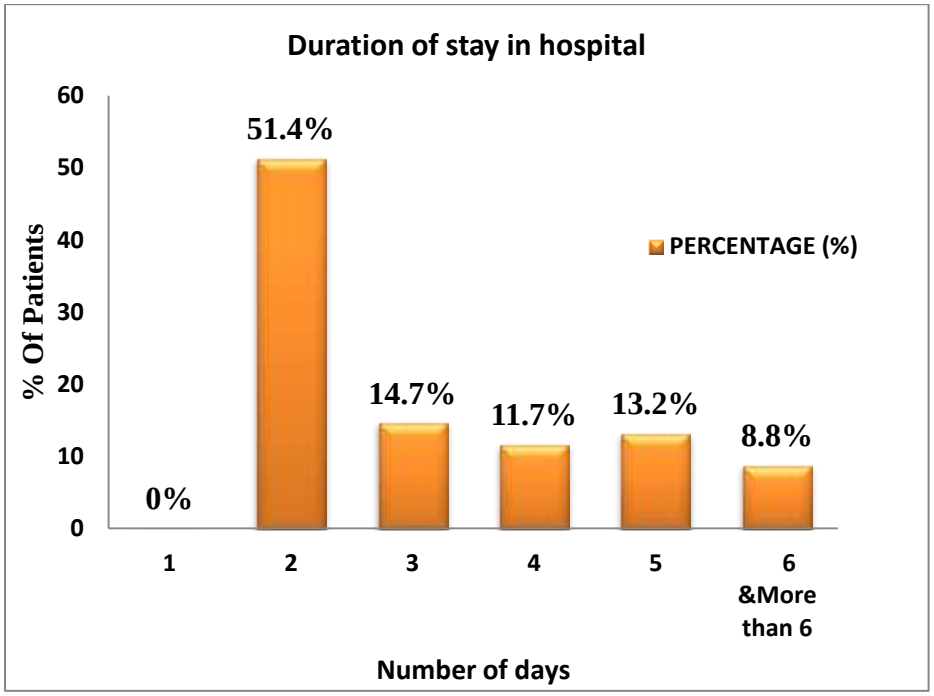

Figure 1: Duration of Stay in Hospital

During the study period, various clinical conditions treated with NSAIDs in Orthopedic department were also identified. It was found that NSAIDs were mainly prescribed as the supportive treatment of fracture 41.1% (n=28) followed by Spondylosis 26.4% (n=18), Osteoarthritis 13.2% (n=9) and Joint dislocation 11.7% (n=8) etc. These findings were similar to other studies conducted in orthopedic department, Singh vetal[18], and Juno. J. Joel, Bincy Thomas [2] [Figure 2].

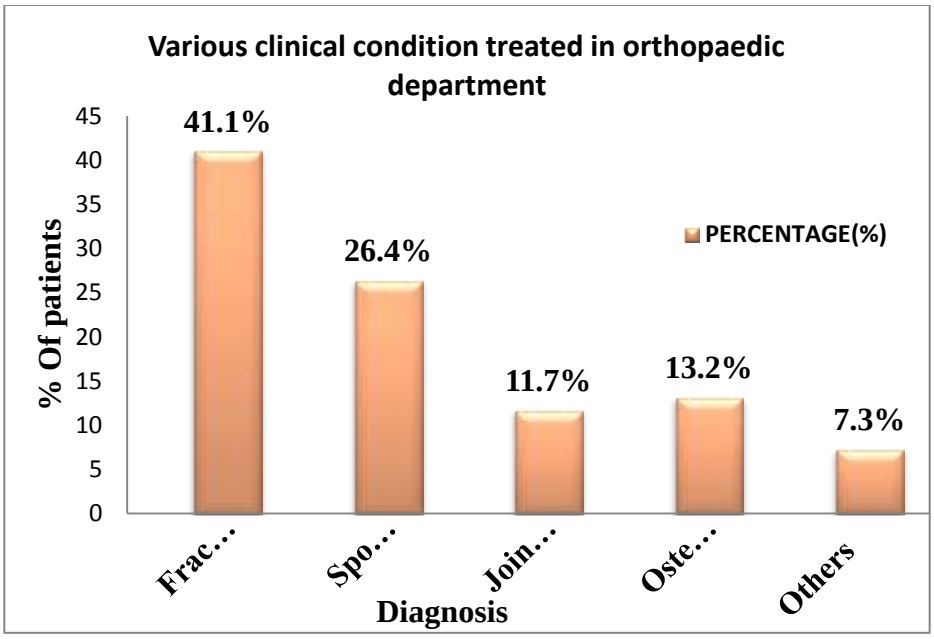

Figure 2: Various Clinical Conditions Treated in Orthopaedic Department

Various NSAIDs prescribed among the study population was studied. The result shows that, Diclofenac 75% (n=51) was found to be the commonly prescribed NSAIDs followed by Piroxicam 16.1% (n=11), where as the least prescribed NSAIDs was found to be Etoxicoxib 2.9% (n=2). These findings were similar to the study carried out by Taurma Sharma etal. In 2006[3] [Figure 3].

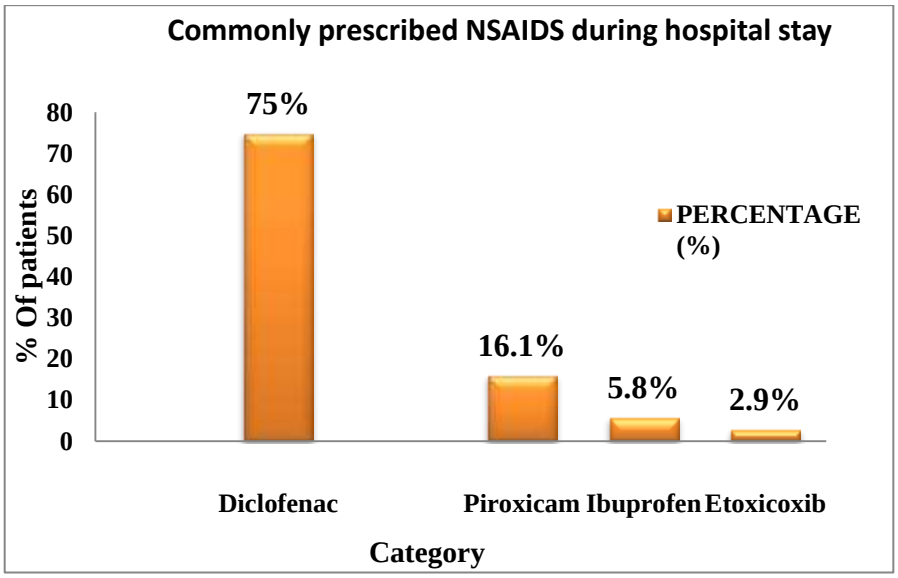

Figure 3: Commonly Prescribed NSAIDS During the Hospital

Monotherapy and Combination therapy of NSAIDs were observed during the study period. The result revealed that 51.4% (n=35) of the patients underwent Dual therapy followed by 48.5% (n=33) with Monotherapy. Some earlier studies conducted by Trauma Sharma et al, in 2006[3]revealed that most of the patients underwent Monotherapy and Fixed dose combinations of NSAIDs during the hospital stay. However some study revealed that majority of the patients were prescribed with combination therapy alone[14]. Tramadol and Paracetamol fixed-dose combination is indicated for the symptomatic treatment of pain. The combination provided effective analgesia in patients with various types of pain, such as osteoarthritis flare pain, chronic lower back pain, postsurgical orthopedic pain, and diabetic peripheral neuropathy pain. The combination of analgesic drugs with different pharmacological properties shows better efficacy and fewer side effects. As in clinical studies, the combination of tramadol and paracetamol was found to be safe, efficacious and is well tolerated for various pain conditions. The benefit or risk is more for combination than individual drug regimen[6, 9] [Figure 4].

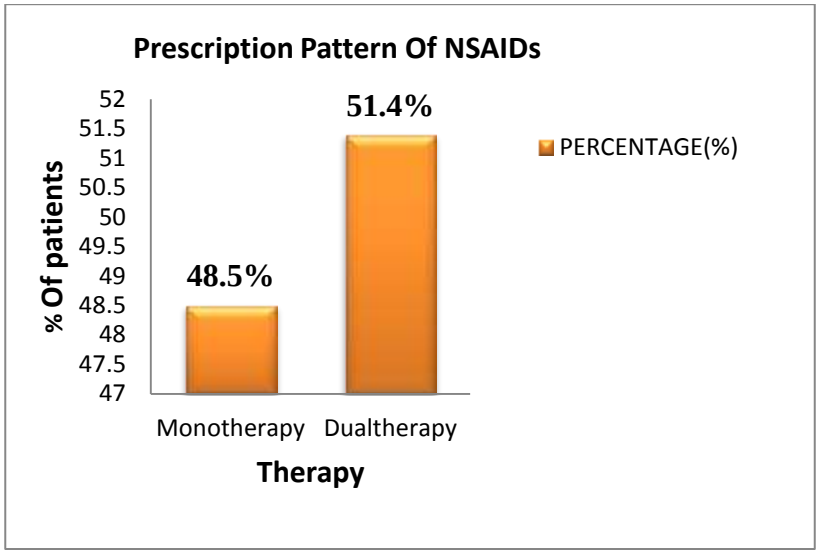

Figure 4: Prescription Patterns of NSAIDs

In this study 76.4% (n=52) patients were prescribed with Parenteral NSAIDs whereas, 23.5% (n=16) patients with Oral route of NSAIDs and 5.8% (n=4) with topical NSAIDs also [Figure 5].

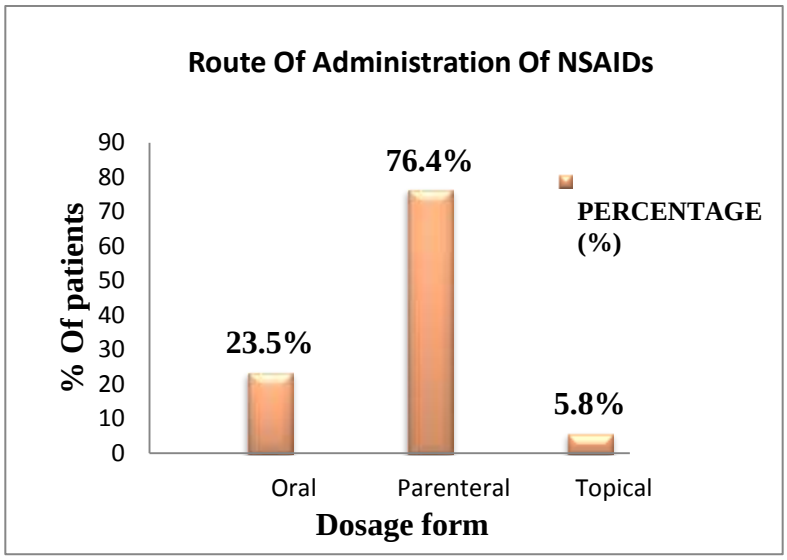

Figure 5: Route of Administration of NSAIDs

Due to Gastrointestinal toxicity of NSAIDs it is frequently co-prescribed with gastro protective agents. Around 89.7 %(n=61) of patients were co-prescribed with gastro protective agents (GPA). Pantoprazole and Rabeprazole were the most frequently prescribed GPA which were accounted by 38.2% (n=26) followed by Ranitidine 10.2% (n=7). However many studies revealed that Ranitidine was the most commonly prescribed GPA with NSAIDs[18] [Figure 6]. Various dosage forms of GPAs revealed that majority of the patients 67.2% (n=41) were administered in Oral route followed by 32.7% (n=20) Parenterally [Figure 7]. Concomitant medications prescribed during the study period revealed that NSAIDs commonly co-prescribed

with gastro protective agents i.e. 89.7% (n=61), followed by antimicrobial agents 76.4% (n=52), Opioid analgesics 38.2% (n=26), Multivitamins and minerals 17.2% (n=12) and Muscle relaxants accompanied by 8.8% (n=6) [Figure 8]. Various NSAIDs and Gastro protective agents during discharge was also studied. The most commonly prescribed NSAIDs were Diclofenac 83.6% (n=51) followed by Aceclofenac 9.8% (n=6). The commonly prescribed GPA while discharge were Rabeprazole with 76.5% (n=36), followed by Pantoprazole 17% (n=8).

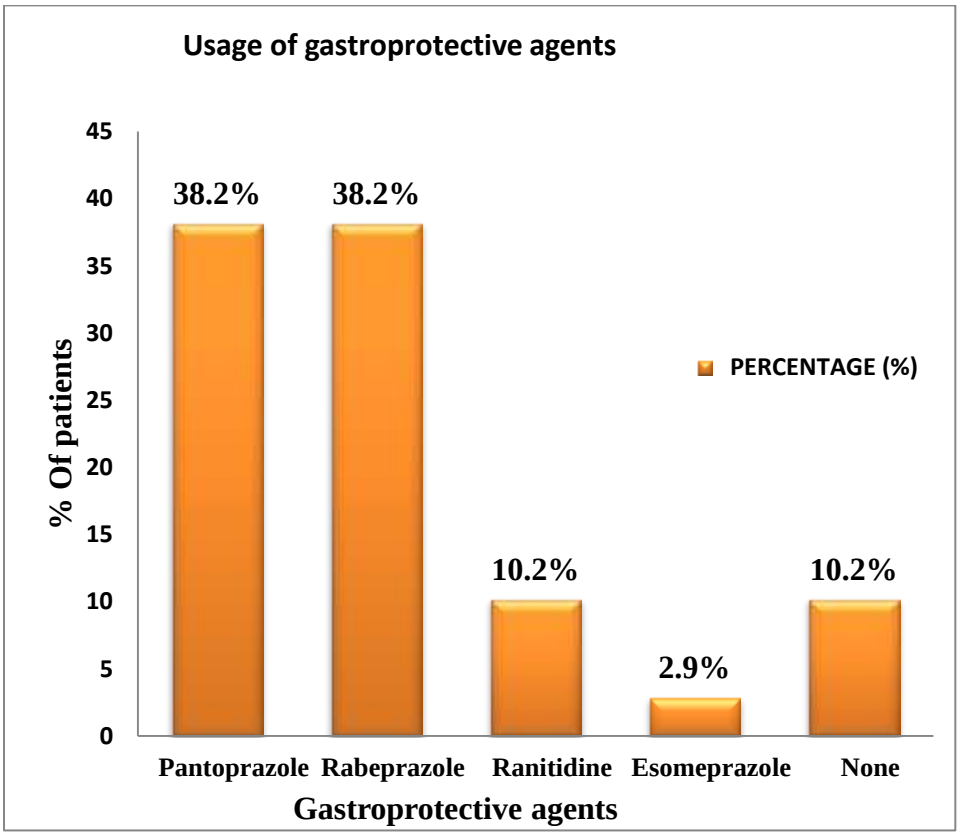

Figure 6: Usages of Gastroprotective Agents

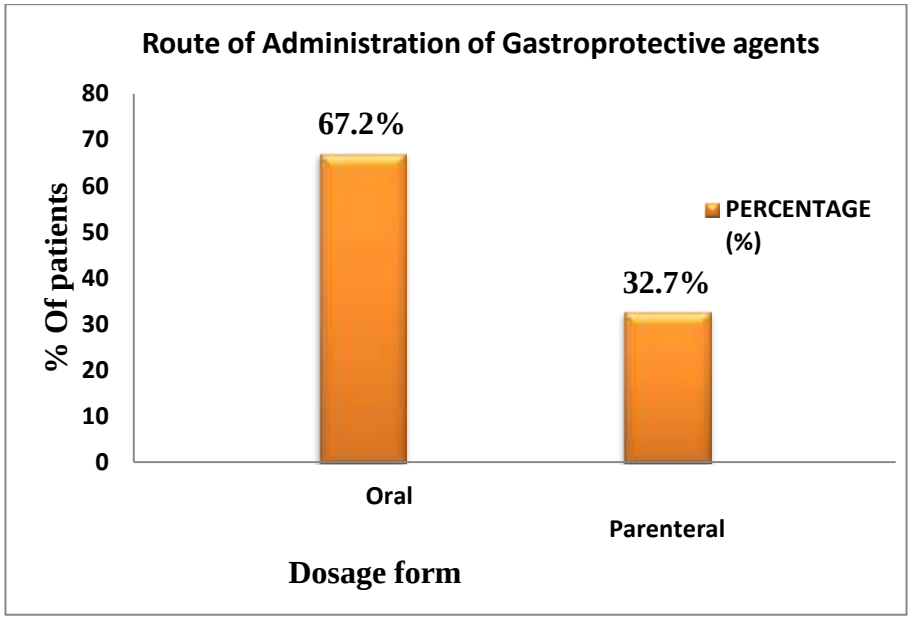

Figure 7: Route of Administration of Gastro protective Agents

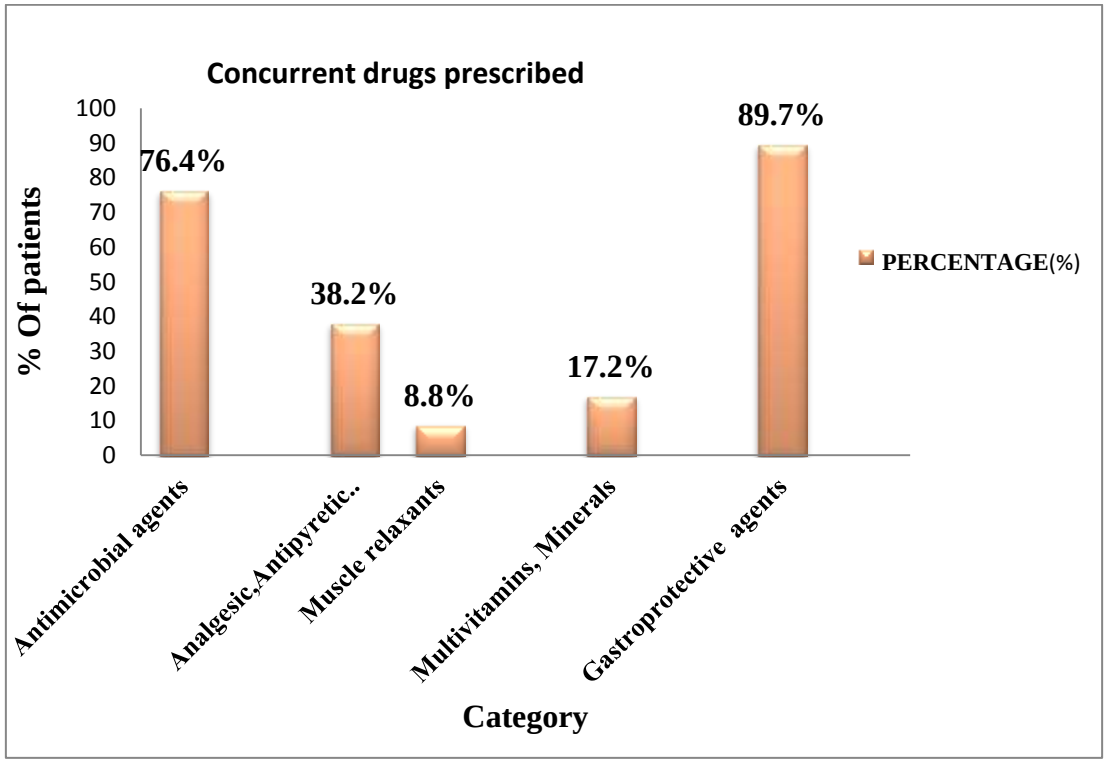

Figure 8: Concurrent Drugs Prescribed

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