

Co-Administration of Nonsteroidal Ant-Inflammatory Drugs and Gastroprotective Drugs in Orthopaedic Out Patient Department of a University Hospital in Kashmir

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Abstract: Nonsteroidal anti-inflammatory drugs are commonly prescribed in out-patient orthopaedic department for acute inflammatory conditions like soft tissue injuries, sports injuries, trauma ;post surgery conditions or chronic inflammatory conditions like lumbago, rheumatoid arthritis and osteoarthritis. To avoid side effects of these NSAIDs ,common gastroprotective drugs prescribed are proton pump inhibitors, H2 blockers, sucralfate, antacids and misoprostol.

Study Design: A cross-sectional, single centre drug utilization was conducted. Prescriptions were obtained from patients attending OPD. The prescription pattern of NSAIDs, gastroprotective drugs or co-administration were evaluated.

Results: A total of 1500 prescriptions were evaluated; in which 1439 (95.9 percent) prescriptions contained nonsteroidal anti-inflammatory drugs with gastroprotective drugs. The most common gastroprotective agents combined with nonsteroidal anti-inflammatory drugs were PPI (proton pump inhibitors) [52.46 percent] followed by H2 receptor antagonists [32.73], while antacids [14.73] were prescribed least.

I. Introduction

Non-steroidal anti-inflammatory drugs (NSAID) are commonly used drugs for years of management of pain and inflammation with good efficacy and represent most widely prescribed class of medications in the world and are used as over the counter drugs (OTC) [1]. NSAIDs inhibit cyclooxygenase (COX) enzymes which catalyse the metabolism of arachidonic acid into prostaglandins. COX is available in two isoforms i.e COX-1 and COX-2 [2,3]. The COX-1 enzyme is constitutive in nature involved in generating prostaglandins for physiological function like gastric protection, regulation of renal blood flow and platelet homeostasis. While COX-2 has been termed as an inducible enzyme involved in inflammation, colorectal cancer and neurodegenerative disorders [4]. A new isoform COX-3 has been recently discovered, although its role is yet not clear [5].

Despite wide clinical use of classical NSAIDs as analgesics, anti-pyretics, and anti-inflammatory agents their gastro-intestinal toxicity (dyspepsia, peptic ulcers and gastrointestinal bleeds) is a major clinical limitation [6]. Selective COX-2 inhibitors were developed with the aim of minimizing gastrointestinal toxicity [7]. However, clinical and experimental data, as well as reviews suggest that the long term use of selective COX-2 inhibitors is associated with an increase in systolic blood pressure and cardiovascular morbidity and mortality due to myocardial infarction [8,9].

Acid peptic disease is very common in Kashmir and use of NSAIDs acts as a predisposing factor for ulcerative disease. Nearly 10-20% of the patients who are in use of NSAIDs develop asymptomatic peptic ulceration and ulcer-related complications in 1-2% of the persons per year [10]. This warrants a cautious use of NSAIDs in high risk individuals who include the elderly, those already receiving gastro-toxic agents and those with a history of gastro-intestinal diseases [11]. So, the best alternative in such individuals would be the co-administration of NSAIDs with gastroprotective drugs. Misoprostol, an analog of prostaglandin E1, has been specifically approved for the prevention of NSAID-induced ulcers in high-risk patients [12,13]. Proton pump inhibitors, H2 blockers have been used successfully to counter the side-effects of these anti-inflammatory drugs.

Our drug utilization was conducted to study the co-administration of non-steroidal anti-inflammatory drugs (NSAIDs) with gastroprotective drugs in postgraduate out patient unit of a university hospital.

II. Material Methods

The Study was done on 1500 patients in Skims Medical college Hospital affiliated to Skims university. A written consent was taken from the patient for participation in the study. All patients using NSAIDs with or without gastroprotective agents, between 16-70 years of age, irrespective of sex were studied. Patients older than 70 years, lactating mothers, pregnant and mentally unfit were excluded.

III. Results

In a one year period from April 2014 to march 2015,a total of 1500 patients were studied.The prescriptions were assessed only once.The demographic data is depicted in ,

Table 1: Demographic Data

Patient profile	no of prescription	percentage
Age in yrs		
17-3o	230	15.33
31-40	258	17.2
41-50	372	24.8
51-60	370	24.6
61-70	270	18.0
SEX		
Male	788	52.53
Female	712	47.46
Diagnosis		
Trauma	300	20.0
Postoperative	203	13.5
Sports Injuries	101	6.7
Cervical spondylosis	208	13.8
Low backache	270	18.0
Osteoarthritis	269	17.9
Rheumatoid arthritis	101	6.7
Others	48	3.2

Among the 1500 prescriptions with oral NSAIDs,the number of prescriptions with gastroprotective agents were 1439(95.9%).

The gastroprotective agents prescribed were proton pump inhibitors,H2 Blockers and antacids.

Table 2: Shows different Gastroprotective Drugs

Name of the	number of prescription	percentage
Gastroprotective agents	[total 1439]	
H2 Antagonists	471	32.73
Famotidine	302	38.8
Ranitidine	476	61.1
Proton pump Inhibitors	755	52.46
Omperazole	12o	24.0
Esomeprazole	98	19.6
Pantoprazole	158	31.6
Rabepraole	102	20.4
Lansoprazole	22	4.4
Antacid preparation	212	14.73

The drugs enlisted in table 2 have been used as gastroprotective agents.

The use of gastroprotective drugs along with the seven commonly used NSAIDs,either as single drug or fixed dose combinations(FDC),is shown in table 3.

Table 3: combination of NSAIDs and gastroprotective drugs

NSAIDs	no of prescriptions	N%	co-prescription of GP		
			PPI	H2 antagonist	Antacids
Paracetamol	120	117(97.5)	15	11	91
Aceclofenac	207	200(96.6)	150	30	20
Ibuprofen	283	280(98.9)	88	160	32
Aceclofenac+thio300	290	290(96.6)	200	70	20
Diclofenac	91	90(98.9)	60	30	1
Diclof+PCM+chloroxzone	101	100(99.)	1	0	0
Etoricoxib	57	50(87.7)	30	18	2
Etorcoxib+Thio	30	25(71.40)	15	7	3
Piroxicam	151	150(99.3)	37	85	28
Tramadol+PCM	140	132(94.2)	60	60	12
Lornoxicam	20	5(25.)	0	2	3s

IV. Discussion

One has to be guarded when prescribing analgesics to patients in Vale of Kashmir in view of the fact that acid peptic disease is very common here. The use of selective COX-2 inhibitors seems to have decreased after the cardiac adverse effects which were observed with these drugs [8,9]. Diclofenac+PCM+Chlorzoxazone, Aceclofenac +Thiocolchicoside, Etoricoxib, Lornoxicam, Piroxicam, PCM+Tramadol were most commonly co-prescribed NSAIDs with a gastroprotective agent-100%. Ibuprofen was the second most commonly used NSAID with a gastroprotective agent-97.92%. PPIs produce more sustained acid suppression as compared to H2 antagonists and promote ulcer healing despite continued NSAIDs Therapy [14,15]. But in the present series H2 antagonists were the most commonly used gastroprotective agents, followed by proton pump inhibitors. This is because H2 blockers are cheap. Antacids were used least, the reason being that these were less effective than PPIs and H2 antagonists.

Antacids are indicated only for symptomatic relief of pain and are associated with a number of drug interactions, thereby restricting their use [11]. Misoprostol, the drug indicated for the prophylaxis of high risk individuals, were not used at all. This may be because of various reasons including the higher cost, frequent side effects and the need for multiple daily dose of Misoprostol. In any case, similar or even better efficacy is obtained by proton pump inhibitors in preventing and/or treating NSAID-induced peptic ulcers [16,17]. Sucralfate was not used as gastroprotective drug in our series.

The drugs Paracetamol (PCM), Diclofenac, Ranitidine and Omeprazole were supplied in hospital free of cost. The limitation of this study was that after initial registration there was no follow-up and no ADR reporting. The strong point was larger number of the patients, easy accessibility.

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