

Research Article

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Prevalence of prescribing pattern of more than one NSAID in Pakistan

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Abstract

Nonsteroidal anti-inflammatory drugs (NSAIDs) represent diverse group of drug with analgesic property and most frequently prescribed drug globally. This is first choice of drug with well demonstrated efficiency for the pain management primarily musculoskeletal disorder and osteoarthritis to treat mild to moderate pain. Although its serious toxicity related to GIT limits its expediency. "Big evil" have tendency to just cure pain relieving symptoms not disease. In this study we aimed to determine the prescribing practice of multiple NSAIDs in Pakistan by healthcare practitioner and their attitude towards patient life safety and what consequences are responsible for irrational practice of these most common OTC drug. For the purpose of this evaluation descriptive studies was conducted based on prescription reading and case histories of more than 200 patients to rule out prescribing habit of physicians. Prescription collected were mostly from emergency (80%) and general physicians (20%). Nearly everyone patient came with intense pain related with muscular and arthritis pain. About 69% patients were being prescribed by double NSAIDs in which acetaminophen ratio was mostly high with Diclofenac sodium (ratio of 60:35). Single practice of NSAIDs has reported just 25% but more than prescription containing multiple NSAIDs 6%. Traditional NSAIDs prescribed more frequently compared to selective NSAIDs by physician which makes patients susceptible to GIT associated toxicity. For the prophylaxis of NSAIDs associated GIT bleeding only 15% patients were coprescribe by H₂ receptor blocker primarily ranitidine (15%) and PPIs (7%) and other (2%). After careful consideration about prescribing habit of NSAIDs by physician we conclude that the irrational practices prevalence have been rising dangerously which needs careful consideration by health authorities.

Keywords: NSAIDs, Prevalence as OTC drug, Prescribing pattern, Physician attitude.

Introduction

Among Analgesics Nonsteroidal anti-inflammatory drugs (NSAIDs) represent a most frequently prescribe drug in the worldwide for arthritis and as a pain reliever management.^{1,2} NSAIDs are especially prescribed in elderly patients.³ NSAIDs have wide Applications in variety of Disease especially in Rheumatoid Arthritis (RA) and Osteoarthritis (OA).⁴ Their prolong Use may Cause serious Complications with Reported cases of Gastrointestinal problems after their chronic usage.⁵ In spite of this fact NSAIDs are widely used in the symptomatic treatment of musculoskeletal disorders and pain reliever. NSAIDs represent a diverse group of drugs differ in chemical structure, but all have the same actions producing their action by blocking prostaglandins synthesis (PGs).⁶ Although All NSAIDs doesn't carry equal profile index regarding their adverse reaction need must careful monitoring while before

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prescribing to patients.^{7,8} The anti-inflammatory effects of NSAIDs are produced by the inhibition of Cyclooxygenase-2 (COX-2) enzyme and COX-1 is responsible for an adverse reaction of GIT.⁹ Therefore COX-2 inhibitors have clinical importance where the patient is susceptible for GIT complication, especially for ulcer and bleeding, but the complication associated with COX-2 inhibitors in cardiovascular system can alter its prescribing preferences.¹⁰ Selective inhibitors of Cyclooxygenase enzyme COX-2 are equally potent compare to non-selective COX-2 inhibitors i.e.; such as ibuprofen and diclofenac with less adverse reactions compare to other NSAIDs.¹¹

Pakistan is a world sixth largest country with a population of about 160 million has a growth rate of 2.06%.¹² It is believed that more than half of the medication prescribe inappropriately, sold or dispense wrongly and patients don't take their medications properly globally.¹³

It is estimated that Irrational prescribing problem and death ratio has not only pronounced on under develop countries but also highly developing countries as Australia, USA and Kuwait and also on middle economic countries as Thailand.¹⁴ An inappropriate prescribing practice of drugs has also not yet been well established in Pakistan.¹⁵ Therefore, the rational prescribing practice of physicians didn't fully develop in Karachi with excessive utilization of antibiotics and parenteral preparations observed in various health sectors.¹⁶

There's a consequent rise in medication error in primary health care sector with reported cases of serious adverse reaction with a rate of about 66% (27% dosing error, inappropriate drug prescribing 6% with 9% drug interaction) with most frequently dosing error with potential threats of prescribing dosing more than 10 folds than actual dose with most frequently prescribing of drug class antimicrobials 100% with NSAIDs 75% and others 44%. Every patient was being prescribed with more than one antimicrobial which can lead to resistance against different pathogens.¹⁷

The frequency of prescribing of NSAIDs increased markedly in the last few years, among elderly people, particularly owing to wide response in inflammatory and infectious disease.¹⁸ NSAIDs are the drug of choice for postoperative pain management and the first treatment to counter surgical pain, especially dental pains because these pain are usually mediated by the release of inflammatory mediators NSAIDs specially block their pathway

(cyclooxygenase).¹⁹ Although NSAIDs differ in their relative efficacy in minor, various discrepancies related to the efficacy of different NSAIDs have been suggested by the authors.²⁰ Many complaints have been reported regarding efficacy of commercially NSAIDs is about more than 100 still; patient and practitioner are confused relative to their efficacy and which NSAIDs is best for pain management which is best on past experience in spite of their prescribing patterns.^{20,21} According to one research different adverse reactions have been reported in about 25% of patients using NSAIDs with serious life threatening complications about 5% with serious consequences of GIT bleeding and kidney failure. Diclofenac sodium shows a high ratio of the side effects of about 90% and dexibuprofen and ibuprofen 30%, respectively.²² Now, The proper utilization of these drugs and prescribing pattern differences among various clinical setting of different NSAIDs need careful monitoring.²³

NSAIDs are the first line therapy for musculoskeletal and degenerative joint pain particularly rheumatoid arthritis and selective cox-2 inhibitor provide better cure as compared with traditional NSAIDs.²⁴ To evaluate the Rational prescribing of NSAIDs in rheumatology health sector in Pakistan a study was conducted conclusion drawn finally that NSAIDs are much over prescribe with more than one NSAIDs which increase the incidence of serious health hazards with no special following of guidelines of gastrointestinal protective agents and irrational prescribing even in senior post.²⁵

The objective of this study is to evaluate the prescribing pattern of NSAIDs by different health practitioner among different healthcare facilities in view of the emerging new knowledge regarding co-prescribing pattern related to serious adverse reaction and suggest Strategies of its rational prescribing to physician. Even though NSAIDs is a most common OTC drug but patient counseling by doctor, pharmacist may protect their life from serious life consequences and it aims to achieve rational prescribing of NSAIDs.

Methodology

This study was conducted in Karachi from January 2014 to February 2014 based on descriptive studies of prescription reading and case histories collected from different healthcare settings especially patients associated with neuromuscular disorders and people with intense pain related to arthritis, headaches, ankylosing spondylitis, sports injuries, menstrual cramps and post surgical pain in

the emergency Department of the hospital where different prescription regarding NSAIDs was analyzed. Physicians whose 200 prescriptions were assessed in this study were from different Discipline of hospital, mostly from emergency and general physicians for the collection of sample data. Practitioner may changed their prescribing habit upon being observed also have been noted.²⁶

For the collection of data regarding the prescribing pattern of NSAIDs, prescriptions were cautiously observed from emergency department and from general physician for prospective studies of samples. In hospital, emergency department is a setting where the threshold of prescribing NSAIDs is usually high therefore; emergency department was especially selected for this purpose. About 200 prescriptions were collected 140 from emergency and 40 from general physician. Complete evaluation of prescription containing NSAIDs was analyzed individually along with adjunct medication, dosage, duration and disease for which it prescribe along with their past experiences regarding their serious consequences and how health

practitioner rationally co-prescribe a same class of medication and other gastro protective agents to counteract their adverse reactions. Brief review about their counseling from Doctors and Pharmacist was also conducted for certain patients.

Result

For the Collection of sample data, 200 prescriptions were analyzed containing chiefly NSAIDs mainly from the ER department of a hospital (80%) and remaining (only 40) prescription were collected from general physicians out of 200 prescriptions. The prescribing habit of physician was assessed that they how irrationally prescribe NSAIDs. About 69% (138/200) prescriptions containing double NSAIDs were analyzed and mostly with a combination ratio with acetaminophen observed. Acetaminophen with Diclofenac sodium, Acetyl Salicylic acid, Naproxen Sodium, Ibuprofen & Celecoxib prescribed mostly (ratio of 60:35:5:10:6:4). Table 1 gives prescribing frequency of different class of NSAIDs in single, double & multiple patterns.

Table 1: Percentage of prescribing frequency of NSAIDs in different pattern

NSAIDs	Single NSAIDs	Double NSAIDs	Multiple NSAIDs
Acetaminophen	20	120	12
Diclofenac	10	74	06
Ibuprofen	15	30	06
Acetyl Salicylic Acid	0	10	04
Naproxen	02	20	03
Piroxicam	02	10	02
Meloxicam	01	04	01
Celecoxib	0	08	02
Frequency Of prescribing NSAIDs	25%	69%	06%

Other different combinations of NSAIDs like Naproxen and Piroxicam, Meloxicam and Celecoxib were also examined. Percentage of single NSAIDs (25%) was very low as compared with double NSAIDs but greater than prescription containing multiple NSAIDs (06%). Dual user of NSAIDs more likely to associate with arthritis and intense muscular pain that people can't tolerate with a single dose or medication of analgesic.

Statistical Analysis

Frequency of NSAIDs prescribing Against each no. of prescription generated

It has been noted that Traditional NSAIDs prescribed more frequently than selective COXIBS (Figure 1). Over dosing error were being also scrutinized and dosing error were minor but greater extent to develop serious consequences related to GIT because only 15 % patients were prescribed

by H₂ receptor blockers and 7% with PPIs mainly and others 2% as Gastrointestinal protective agents. (Figure 2) There's no special protocol for patient counseling about

NSAIDs indications, their benefits and long term side effects was also observed.

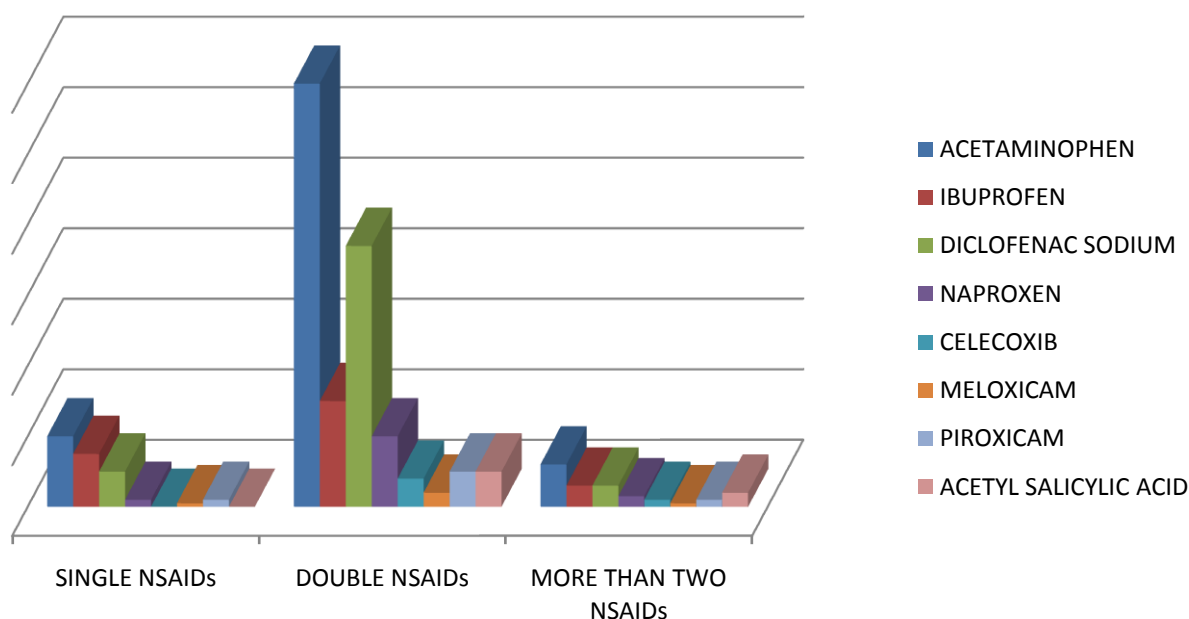


Figure 1: Different NSAIDs against each no. of prescriptions

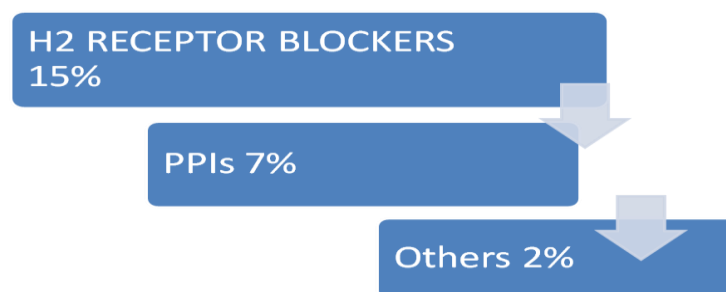


Figure 2: Gastroprotective prescribing percentages

When patients asked about counseling from physicians and pharmacist it was very distressing situation that their aggressive behavior reflects that they used NSAIDs most frequently as OTC medication and they are not awarded by their physician or pharmacist in the past, now they believe to be useless about potential toxicity related to their medications. It has been noted that people are not aware about their medications as they don't know that the two medications came from the same therapeutic class they just want get rid from pain.

Discussion

Basically the purpose of this study is to evaluate the causes of irrational prescribing of most frequently used medicines primarily NSAIDs in Pakistan is of grave concern as Nonsteroidal anti-inflammatory drugs is most commonly used OTC drug people usually take it without any prescription and they are not aware about its serious consequences after prolong use because in past they were prescribed from any physician and may be inappropriate counselling from doctors and pharmacist that how did they put on dangers seriously.

Nonsteroidal anti-inflammatory drugs, comprised a diverse group of drug class and most frequently used drug among

elderly patients its successful therapy for the pain relieving symptoms of arthritis and moderate pain related to musculoskeletal disorders, it relieves just symptoms not disease should be kept in concern. among self medication profile drug percentage of NSAIDs is mostly high after anxiolytic drugs of the benzodiazepine drug class. People perception towards prescribing of NSAIDs has been near to abselete in Pakistan that they don't need a prescription for this "big evil" called NSAIDs.

Basic reason we conclude behind this srious issue is mainly illetracy among peoples of aged 35-50 years of age. Their past experience to encounter pain symptoms, NSAIDs have developed dependence seriously in their life even people have included in their part of life like as nutrition entity. It puts society and healthy people a great risk of developing life threatening consequences because; approximately all NSAIDs have potential to develop serious gastrointestinal bleeding lead to ulcers of GIT.

Unfortunately prevalence of irrational prescribing increasing day by day people came in health department actually are not aware about their medication and its reason of prescribing. In Pakistan prescribing authority is just empowered by just doctors and ther's no evident role of pharmacist in clinical setting and hospitals still not fully established and inappropriate prescribing threshold is so high. Nowadays the prescribing authorities also govern by many healthcare practitioner other than physician in various countries expediently.²⁷ People often take their medication without prescription in pakistan including growing countries from pharmacy.²⁸ Although the prescribing practices from non-physicians is still not well understood concerning patient safety that might lead to serious life threatening consequences regarding dosing error, resistance from pathogens, poor diagnosis, addictive drugs & ADR (adverse drug reaction). Painkillers, antimicrobials & antihistamine were prescribed largely according to their study.²⁹

The irrational use of OTC medication have been reported seriously in many developing countries and most common class of drugs primarily concerning life threatening issues belong to opiod analgesics, antihistamine, NSAIDs inducing GIT bleeding, antihistamine, anti-tusive and sedative products. This is serious issue need various high authorities concerning to minimize its abuse for quality of healthcare assurance.³⁰

After careful consideration towards prescribing patterns of NSAIDs of Karachi results shows that the prescribing

threshold of non-selective COXIBs are high as compared to selective that's the grave concern regarding patient healthcare for society and prescribing authorities are primarily responsible for that when the market has introduced a new class of selective NSAIDs that don't cause GIT bleeding and ulcer symptoms then why they prescribe non-selective COXIBs? At least prescribing authorities should concern seriously co-prescribing of Gastroprotective agents' adjunct with NSAIDs.

A new class of NSAIDs with selectivity in its action towards Cyclooxygenase Enzyme frees from gastrointestinal toxicity, Celecoxib and refucoxib have replaced non-selective COXIBs due to safety concern, but in Pakistan its prescribing ratio reported to be lower compared to non-selective COXIBs because ibuprofen and naproxen action towards pain relieving symptoms perceived by patient high compared to celecoxib.

Acetaminophen was most prescribed drug according to this prescription reading every third prescription contained it and dosing error was so extremely high, it can cause serious liver problem even with less than maximum dose which is usually a 4 g/day. People were co-prescribe by multiple NSAIDs adjunct with acetaminophen reflects its is less far potent than other analgesics. About 69% patients were dual users of NSAIDs according to this survey and the dual user was mostly with arthritis pain reflects irrational prescribing habits of health practitioner and the poor counseling by pharmacist or dispenseries and inadequate pain management leads to self medication by people ownself spread in our society basically reflects poor quality of life and unawareness about their health.

The important finding about practice of more than one NSAIDs reveals some basic facts:

- Irrational prescribing habits of physicians.
- Not supported /visible role of the pharmacist.
- Patient adherence with medication from a long period and with physician.
- People have no awareness concerning their medications that they used more than one NSAIDs came from the same therapeutic class.
- One reason may also possible that they don't get pain relief due to inadequate pain management of NSAIDs by their physicians.

Conclusion

After careful consideration from this survey we can highlight following interventions which need further

investigation that the use of more than one NSAIDs practice in society extend widely.

First line accountability towards this approach goes to health practitioner but not only health care provider are responsible for that one reason may be possible that inadequate pain management and poor quality of life are also contributing factor, Health sector authorities should need to set strategies towards appropriate management of pain symptoms may encounter multiple use of NSAIDs at a time and serious toxicity related to their wide application may safe patients life. Ther's also need of patient awareness about more than one NSAIDs that they belong to same therapeutic class also affect people psychologically. Co-prescribing of gastroprotective agents should also necessary to follow international health guidelines regarding patient health safety.

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Conflict of Interest

There is no Conflict of Interest.

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