ORIGINAL ARTICLE

The Effect of Self-Medication with NSAIDs on GIT in Orthopaedic Patients

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Abstract:

Self-medication is a gradually increasing entity in a healthcare system. It leads patients towards greater independence in taking decisions about management of minor illnesses. It ensures access to medication and limits delayed diagnosis, worsening of disease evolution, the cost burden of drugs in comparison to prescribed drug. The aim of the study was to evaluate the prevalence of the use of NSAIDs as in the form of analgesics for self-medication with their associated risks especially GIT symptoms. This cross-sectional study was done at Holy Family Red Crescent Medical College Hospital, Dhaka, July 2018 to December 2018 for 6 months among the patients who registered to visit Orthopaedic OPD for their musculoskeletal problems. A pretested and validated questionnaire was used to collect data. There were 97% response rate recorded. The study included 571 randomly selected patient aged between 20 to75 years, of which 55.3% were from urban areas versus 44.7% from rural areas, females being dominant (69.32%). The drugs which was surveyed, were used by 84.8% of the study population, in most cases the administration being made without prior professional advice. Of the 331 participants from urban areas, 89% used the self-medication, compared with 58.31% in rural areas. Paracetamol (46.34%), followed by Ketorolac (24.47%) and Diclofenac (22.7%) are among the most widely used analgesics, both in urban and rural areas. The most frequent symptoms that required self-medication were: low back pain (urban and rural areas), neck pain (predominantly urban) and knee joint pain (predominantly rural areas). Misuse of analgesics and anti-inflammatory drugs, both in urban and rural areas is a burning issue. The growing economy improvised urban and rural people to avail the medications without knowing the risks. Close monitoring, a multilevel venture between all concerned - patients, physicians and pharmacists to provide the supervised education and appropriate information on safe self-medication for the accomplishment of national goals, are suggested plan of action.

It will maximize the benefit and minimize the risks.

Keywords: NSAIDs, Self-Medication, Analgesics, Anti-Inflammatory Drugs

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Introduction:

Self medication is most commonly used for headache, joint ache, fever, cold and cough, allergy, acidity, and diarrhoea. According to the World Health Organization (WHO),), self-medication is described as "the selection and use of medicines by individuals (or a member of the individual's family)

These drugs are taken by the patient himself to get cured from a common illness or symptom without the proper advice of the physician. These consists of drugs and herbal medicines[1].

A large number of researches on self medication have been performed in various countries across the world, revealed that self medication is obvious, especially in poverty-stricken communities. Reasons usually adducted for indulgence in self-medication includes delayed access to health care centers, socio-cultural belief, comparatively high value of hospital treatment, previous expertise of treatment of same symptoms, simple availableness of medication, poor regulative practice, the urgency of feeling alleviated, recommendation from friends and these days data from net and media. Moreover, the ratio between doctor and patient in Bangladesh is currently as low that places the country at second position from the bottom, among the South Asian countries, according to the WHO[2]. On the other hand, many people utilize not being in the know, economical shortcomings and generalized hypes.

Self medication can improve the achievements of primary healthcare of a given settings if opted accurately. Self medication may lead to a positive outlook by being self sufficient and to be in charge of ones' life, and decrease the cost burden. However, at the same time, inappropriate knowledge regarding self medication drugs can cause life threatening consequences. To avoid the same, there should be adequate information with the consumer[3]. Therefore, patients need to check the self medication of drugs by themselves, and at the same time reduce the complications of administered over the counter (OTC) drugs or self medication. The role of family physicians and primary care personnel is to help lessening the burden of the complications associated with the self medication of NSAIDs.

Within the extensive setting of self-medication, relief of pain holds a major position. OTC (over the counter) drugs are a major part of the self medication process. The analgesic Paracetamol was the first OTC drug to be made available[4,5]. Now a days, NSAIDs occupied one of the leading self-medication categories in Bangladesh. People first go to the available nearby pharmacies as the first point of contact for OTC medication, and they may not think of safety and efficacy of the drugs. However, even the drug dispenser may not keep a check on the patients' requests. This possess increased risks such as adverse drug reactions, drug interactions due to inappropriate dosage even it may lead to prolonged, or frequent use of same drugs. The patient who needs the drug solely depends on the immediate benefits and given informations by the dispenser in most of the cases. This finding of an easy solution of OTC medication hastens the irrational[6].

Pain is the earliest symptom of the consequence of tissue injury, trauma that brings the patient to the physician. Pain Perception/sensation differs in every individual. Pain of somatic origin is treated by nonsteroidal anti inflammatory drugs (NSAIDs). NSAIDs are the mainstay of treatment in any kind of acute and chronic inflammatory orthopaedic conditions. The introduction of NSAIDs was a landmark event to control pain and they become the most widely used medication not only for the relief of pain and fever, but also for their anti-inflammatory effect[7]. NSAIDs comprises the most frequent single group of drugs used worldwide, resulting in wide exposure of patients to this classes of drugs and their related risks. NSAIDs constitutes the highest practiced classes of drugs in the Orthopaedic specialties. NSAIDs are commonly used in the elderly for the treatment of fever, pain, pain associated with inflammation in rheumatoid arthritis and osteoarthritis, neuromuscular disorders, headache, and musculoskeletal conditions[8,9]. Musculoskeletal disorders are the most frequent cause of physical disability in countries like Bangladesh.

Musculoskeletal disorders are the most frequent cause of physical disability in countries like Bangladesh. They have a large impact on health and impose a heavy economic burden on health care systems. According to WHO, musculoskeletal disorders are the most frequent cause of disability in the modern world, and the prevalence of these diseases is rising at an alarming rate[10]. Non selective COX 1 and COX 2 inhibitors are more commonly used than selective COX 2 inhibitors for symptomatic and definitive treatment of this painful inflammatory bones and joint diseases. The frequently taken analgesic or anti inflammatory drugs are Paracetamol, Diclofenac, Ketorolac, Naproxen, Ibuprofen, Indomethacin and Aspirin; also, Etoricoxib. All of these NSAIDs possess severe adverse effects like peptic ulcer disease, gastric or intestinal perforation, and gastrointestinal bleeding. Few of them can cause adverse drug reactions if being taken unknowingly, having contraindications[11, 12]. Their excessive use may result into serious adverse event diminishing their pharmacological effect[13].

Various studies showed that NSAIDs increase the risk of upper gastrointestinal complications three to five times[14]. Some other studies reported that the selective COX-2 inhibitors produce less gastrointestinal complications[15,16]. Though, serious cardiovascular risks have been elucidated with these agents. Such gastrointestinal and cardiovascular events ensure the safety profile of various NSAIDs. In a systematic review and meta analysis, it was observed that the simultaneous administration of any drug with a variant dose and duration of NSAIDs by the patients is a determining factor for the adverse effects to happen. Aceclofenac, Celecoxib, and Ibuprofen were related to the smallest relative risk whereas Piroxicam and Ketorolac had the largest relative risk of higher GIT complications. The intermediate relative risk was discovered for Diclofenac, Ketoprofen, Tenoxicam, Naproxen, and Indomethacin[17,18]. Most commonly

used drugs were analgesics (58%), followed by antipyretics and antibiotics, and very few of them (8%) are aware of the adverse consequences[19]. Thus, there is a scaring affair regarding the patient's information of the possible adverse effects because of self-medication. Detail monitoring of use of NSAIDs in various sections of the society needs to be done more frequently considering the potential adverse drug reactions and complications after the prolonged use of NSAIDs[20-22]. In a randomized control trials on NSAIDs published before January 2019, more than three hundred papers were included for generating evidence based recommendations. As NSAIDs are related to many serious adverse effects like cardiovascular disease, renal dysfunction, and gastrointestinal complications, thus identification of high risk cases, choice of NSAIDs and follow up of the patients after drug therapy are necessary to minimize the risk of adverse events[23]. In a survey that entitled four hundred patients, the informations of NSAIDs together with their dosage, side effects and contraindications were assessed in an outpatient rheumatology clinic. It was shown that 68.5% were exploiting over the counter NSAIDs. Nearly one third were unaware of contraindications of NSAIDs such as peptic ulcer disease, renal impairment, and hypertension[24]. However, long term controlled clinical trials on selective and non selective NSAIDs showed not a significant difference in their effect on the cardio renal system[25]. This study was aimed to provide a broader insight into the self-medication practices in a cross section of urban and rural people in examining the use of NSAIDs available as OTC or non-prescription drug and reasons for use.

Materials and method:

The study was conducted from July 2018 to December 2018 for 6 months, on the patients who registered to visit Orthopaedic OPD for their musculoskeletal problems at Holy Family Red Crescent Medical College Hospital Dhaka, a well

reputed tertiary healthcare center in Bangladesh. Our study included 571 randomly selected people aged between 20 to75 years. The research was carried out using a preset validated questionnaire examining self-administered drug consumption on a period of six months prior to the interview. The questionnaires were anonymous and the data obtained were used exclusively for statistical processing. There were 97% response rate recorded. The collected data were analyzed by the SPSS 20.0 software, using the paired T test for quantitative analyses and Chi-square test for differences in proportions.

Results:

Among the total 571 subjects, self-medication was found in 331 urban people from different parts of Dhaka metropolitan city and 240 rural people of nearby or distant districts of the county. The analysis of the demographic data showed that self-administration extended through urban and rural areas at the proportion of 57.97% vs 42.03%; more than 70% of the study population was under 40 years old i.e. younger age and, regardless of the origin, most of the participants were females (69.32%).

Table I: Demographic Criteria of the Respondents

Patient characteristics		No. of Respondents (571)		Percentage, %
Age in years	**20-40**	400		70.06
	40-60	67		11.73
	60-75	104		18.21
Residence		**Urban**	**Rural**	
Gender	Male 177	68	109	31.68
	Female 394	263	131	69.32
	Total	331	240	100

The patients who used self-medication increased proportionately with the duration of time: 43.67% were recorded in the first month whereas 80.55% in the 6th month of the study. The most frequent sources of information for self-medication were drug dispensers (38.6%), relatives and friends (35.4%) and advertising through media and internet (22.5%).

The most commonly used drug was Paracetamol (46.34%), followed by Ketorolac (19.47%), very popular in the treatment of acute pain and Diclofenac (16.51%), Naproxen (10.24%), and Ibuprofen (7.44%, one of the safest NSAIDs. 18.2% patients had taken PPIs together with an NSAID. The patients were questioned about the risks like GI complications: their smoking habit (over 10 cigarettes/day or less), drinking habit (100 g/day), history of Helicobacter pylori infection, concurrent use of corticosteroids (number of months in a year), long duration NSAIDs therapy ($\geq$ 3 months), previous hospitalization event due to GI morbidities (an ulcer or a bleed), history of co-morbidities (cardiovascular, kidney, liver, diabetes, hypertension). 43% of participants reported experiencing GI symptoms at least once in lifetime.

Table II. Gastrointestinal (GI) risk factors in the study group

GI risk factors	Percentage (%)
Need for long-term NSAID use	71
Comorbidities (cardiovascular, renal, liver, diabetes, hypertension)	30
High dose of NSAID use	65
History of GI symptom	26
Smoking habit	72
Drinking habit	12
History of steroid use	8
History of hospitalization due to GI events after NSAIDs	19
Helicobacter pylori infection	29

The most frequent conditions for which self-medication of NSAIDs were consumed: low back pain due to PLID or sciatica, significantly increased in urban areas (37%) compared to rural areas (21.3%, p = 0.002); neck pain due to cervical spondylosis in similar proportions in both areas (34.6% in urban versus 20.2% in rural areas); joint pain due to osteoarthritis, in similar proportions in both areas (24.7% in urban versus 37.7% in rural area) (Table I). More than half of these patients (53%) did not mention their diagnosis but chronic diseases were found in 23% of more than 40 years old group.

Table III: Reasons for which the NSAIDs were used

Symptoms	Urban area		Rural area	
	%	P value	%	P value
Low back pain	37	P = 0.004	21.3	P = 0.002
Neck pain	34.6	P = 0.001	20.2	P = 0.002
Knee Joint pain	24.7	P = 0.001	37.7	P = 0.001
Multiple joint pain	10	P = 0.001	23.2	P = 0.001
Traumatic pain	9.3	P = 0.001	7.6	P = 0.001
Generalised bodyache	15.1	P = 0.001	29.5	P = 0.001
Tingling, Numbness	18.2	P = 0.001	22.6	P = 0.001

Discussion:

Analysing self-administered drug consumption in relation with education, gender, residential area, there were no significant differences (p>0.05). Here, self-medication was considered as all people introduced in this study were exposed equally to advertisements in media, internet and availability and free advices on drugs from dispensaries. The study focused mainly on young, educated people from urban area (mostly students from various universities) and elderly people from agricultural rural zones. Greater educational qualifications and faulty self-rated health was associated with higher use of OTC in some studies[26, 27].

This study revealed the associated risks of NSAIDs self-medication in cross section of urban and rural areas of Bangladesh. Although guidelines recommend use of PPIs, a significant number of patients was not aware to use concurrently as compared to just above 30% in the study done in south India28. Among the GI risk factors evaluated in the questionnaire, long term use of NSAIDs (≥ 3 months) was the most prevalent risk factor in the overall study subjects, followed by co-morbidities (cardiovascular, renal, liver, diabetes, hypertension), higher NSAID doses (65%), earlier GI events (19%). These events were significantly (p<0.01) higher than that reported by other international studies identifying the risk factors for developing GI complications, including certain prior NSAID use[29-38]. Incorrect diagnosis and selection of therapy, and failure to recognize or report adverse drug reactions leads to an increase in drug-induced diseases, wastes the public expenses.

In recent years, healthcare is heading towards a more patient centered approach entailing self-care and responsible self-medication. The new approach comprises acceptance of the switching from prescription to non-prescription regime. This is due to the fact that present day patients play a more responsible role in the maintenance of their own health and are often competent to manage uncomplicated or/and recurrent sicknesses after right medical diagnosis and without seeking further professional advice. Studies caught up on self-medication stated that this is often a common practice, particularly in economically underprivileged communities. In some other similar worldwide researches, the most practiced drugs of self-medication were analgesics and, anti-inflammatory drugs[39 - 43].

This study focused on five drugs related to self-medication: Paracetamol, Ketorolac, Diclofenac Naproxen, and, Ibuprofen as they are currently part

of the composition of a large number of drugs used to treat headaches, and transient musculoskeletal pain. Data showed that these drugs were preferred in low back pain, cervical pain, knee joint pain. No significant changes happened for their alleviation of pain as the selected drug or dosage was inappropriate. The discrepancies observed can be explained by criteria of OTC medicines and subsidiaries to prescription NSAIDs by the government due to costly prescription NSAIDs at the community health clinics and urban primary care settings. Their choice of NSAIDs was not based on their effectiveness in most cases in this study.

Symptoms that required this medication more frequently were low back pain, significantly increased in urban areas versus rural areas, p = 0.002, followed by neck pain and knee joint pain found in both the residence areas. There is a general agreement that self-medication has benefits on individuals and community. It prevents minor symptoms, reduces medical consultations for individuals. In community level, self-medication can save wastage of scarce medical resources on minor conditions, and could increase the availability of health care to populations living in rural or remote areas.

Conclusion:

The findings of this study indicate that NSAID self-medication practices are not in line with clinical guidelines for safe use. The prevalence of NSAID self-medication as pain relievers in this study group was very high with a tendency towards abuse and misuse. People do not have enough knowledge regarding risks associated with their self-medication so it is unsure whether to promote self-medication or not. For developing countries like Bangladesh where the proper awareness of knowing, economic status is to be updated, the risks of self-medication are higher. The probable emergence of GIT adverse events is also very high in these subjects. Health professionals should make it safe for the people who are using it, by providing with sufficient information, therapeutic advice and education. We consider that holistic approach should be taken to prevent this problem, which includes proper awareness and education regarding self-medication and pharmaceutical products advertising. The difference between the available guideline recommendations and what is happening in the real world should be explored further.

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