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Research Article

Prescribing Practice of NSAIDs in an Orthopedic Department of two Hospitals of Kathmandu Valley, Nepal: a Comparative Study

Mahasagar Gyawali[1*], Rashmi Karki[1], Nirajan Bhusal[1], Sangam Subedi[2] and Nim Bahadur Dangi[2]

[1]Janamaitri Foundation Institute of Health Sciences, Hattiban, Lalitpur, Nepal
[2]School of Health and Allied Sciences, Faculty of Health Scienes, Pokhara University Nepal

*Corresponding Author
Mahasagar Gyawali

Abstract: **Background:** Inappropriate prescribing has been recognized in several health facilities in developing countries that need to be assessed periodically to improve the therapeutic efficacy, reduce side effects and provide feedback to prescribers. The purpose of this study was to compare the prescribing pattern of NSAIDs in two hospitals of the orthopedic outpatient department located in the Kathmandu valley of Nepal. **Method:** A cross-sectional hospital-based descriptive study of a month duration (August 2017) with a purposive sampling method was undertaken for the data collection. WHO drug use indicators were selected to evaluate prescription patterns. A total number of 205 patients were eligible from hospital M and hospital K (135 and 70), respectively. **Results:** Among 135 patients studied in HM, the diagnosed orthopedic cases were joint pain (28.1%), low back pain (16.3%), traumatic case (19.3%), spinal case (3.7%) and others (32.6%) whereas studied 70 patients in HK were diagnosed joint pain (24.3%), low back pain (18.6%), traumatic case (14.3%), spinal case (8.6%) and others (34.3%). The frequency of prescription of Aceclofenac (73.3% and 54.3%) was highest among NSAIDs in HM and HK, respectively. The duration of NSAIDs prescribed was in percentage (50.4%) for ten days in HM, whereas it was 41.4% for seven days in HK. **Conclusion:** NSAIDs were the frequently prescribed drugs in the orthopedic OPD of both Hospitals. Joint pain was the most frequently encountered diagnosis. Aceclofenac was mostly prescribed conventicle non- selective NSAIDs. Along with NSAIDs, PPIs were also prescribed frequently. Based on the recommendation, NSAIDs were used for a short duration.

Keywords: Prescribing pattern, prescription, NSAIDs.

INTRODUCTION

Drug utilization is the marketing, distribution, prescription, and use of drugs in a society with particular emphasis on the resultant medical and social consequences (Gupta, M. *et al*., 2005). Non-steroidal anti-inflammatory drugs (NSAIDs), an OTC drug, are the most commonly used for relieving pain and inflammation. A routine prescription of NSAID is a global scenario; for instance, more than 70 million prescriptions for NSAIDs are filled in the United States (US) each year. Some investigation has estimated that 5 - 10% of the adults in the U. S. use NSAIDs regularly. More than 30 billion OTC NSAIDs are sold annually in the U.S. (Jain, M., & Patil, T. A). It represents the most widely prescribed class of medications in the world, working by interfering with cyclooxygenase (COX) pathway, involving the conversion of arachidonic acid by the enzyme COX to prostaglandins. With a variety of NSAIDs that are presently available, it is difficult at times to select a particular NSAID on a rational basis alone but empiricism. Often encountered indications of NSAIDs are Rheumatoid arthritis (RA), Osteoarthritis (OA), low back pain (LBP) (Sharma, T., & Dutta, S. 2006). As per the previous study conducted, the pattern of the study shows that the frequently used non-selective NSAIDs were Aceclofenac (Rahman, K., & Ahmm, K. 2016). Diclofenac, non-selective COX inhibitors, were mostly prescribed (Jain, M.P.T. 2016).

Prescribing pattern studies are undertaken to scrutinize, assess, and, if required, advocate amendments in the prescribing behavior of health care professionals to ensure that medical care is rational as well as economical. This study aims to analyze the prescribing pattern of NSAIDs among patients attending Orthopedics OPD and to see the correlation

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selective COX-2 inhibitors and older conventional NSAIDs in practice in the present scenario.

METHODOLOGY

A descriptive and cross-sectional study with a purposive sampling technique was undertaken. The study areas were Hospital M (HM) and Hospital K (HK), Kathmandu valley, (Name of the hospital has been not taken for ethical considerations). The total number of samples was 205 prescriptions (135 respondents from HM and 70 from HK). The prescription was analyzed having NSAIDs with or without concurrent medication, irrespective of age, and gender. We excluded the patients who were on follow up, pregnant, lactating, and unable to comply due to mental retardation, unconscious from the study. The data was collected for one month (August 2017). The study was conducted after ethical approval from JF of health sciences and obtained written consent from patients.

RESULTS

A total of 135 and 70 patients were eligible for this study in two of the private hospitals (HM and HK, respectively). The percentage of the number of patients (23%) was highest in the age group 40-50 on HM, whereas the percentage (21.4%) was highest in the age group 30-40 in HK (Table 1). Among 135 patients studied in HM, the diagnosed orthopedic cases were joint pain (28.1%), low back pain (16.3%), traumatic case (19.3%), spinal case (3.7%) and others (32.6%) whereas studied 70 patients in HK were diagnosed joint pain (24.3%), low back pain (18.6%), traumatic case (14.3%), spinal case (8.6%) and others (34.3%) (Table 2). The frequency of prescription of Aceclofenac (73.3% and 54.3%) was highest among NSAIDs in HM and HK, respectively (Table 3). HM and HK, proton pump inhibitors (38.6 and 38.9% respectively) were most concurrent prescribed medications (Table 4). The duration of NSAIDs prescribed was in percentage (50.4%) for ten days in HM whereas it was 41.4% for seven days in HK (Table5).

Table 1 Age of respondents

Age	Hospital M		Hospital K	
	Frequency	Percentage	Frequency	Percentage
0-10	6	4.4	4	5.7
10-20	14	10.4	7	10
20-30	25	18.5	10	14.3
30-40	23	17	15	21.4
40-50	31	23	15	21.4
50-60	17	12.6	6	8.6
60-70	14	10.4	11	15.7
70 above	5	3.7	2	2.9
Total	135	100	70	100

Table 2 Final Diagnosis of the cases

Diagnosis	Hospital M		Hospital K	
	Frequency	Percentage	Frequency	Percentage
Joint Pain	38	28.1	17	24.3
Low back pain	22	16.3	13	18.6
Traumatic case	26	19.3	10	14.3
Spinal case	5	3.7	6	8.6
Others	44	32.6	24	34.3
Total	135	100	70	100

Table 3 Prescribed NSAIDs

NSAIDs	Hospital M		Hospital K	
	Frequency	Percentage	Frequency	Percentage
Aceclofenac	99	73.3	38	54.3
Diclofenac	8	5.9	3	4.3
Etoricoxib	7	5.2	5	7.1
Fix dose combination	21	15.6	13	18.6
Naproxen	0	0	5	7.1
Indomethacin	0	0	6	8.6
Total	135	100	70	100

Table 4 Concurrent Medication Prescribed

Concurrent	Hospital M		Hospital K	
Medication	**Frequency**	**Percentage**	**Frequency**	**Percentage**
Antibiotic	23	8.1	11	7.4
PPI	110	38.6	58	38.9
Multivitamins	64	22.5	36	24.2
Muscle Relaxant	13	4.6	8	5.4
Others	75	26.3	36	24.2
Total	285	100S	149	100

Table 5 Duration of NSAIDs

Duration	Hospital M		Hospital K	
	Frequency	**Percentage**	**Frequency**	**Percentage**
3 days	9	6.7	1	1.4
5 days	20	14.8	18	25.7
7 days	38	28.1	29	41.4
10 days	68	50.4	22	31.4
Total	135	100	70	100

DISCUSSION

The patients of the 40-50 age group were found in higher frequency in HM and HK. As with middle age, the human body to respond and tore differently with acute and chronic injuries (www.coastalorthoteam.com). Arthritis (67%) was the most common cause of taking NSAIDs followed by spinal disease (9%) in the study of Lee *et al*., (2011), whereas fever (33%) followed by headache and low backache in a study of Dhananjay *et al*., (2013). Both hospital NSAIDs were indicated for joint pain (28.1%) in our study. In this study, the most commonly prescribed NSAIDs were Aceclofenac. Its consumption was 73.3%, in hospital M and 54.3% in Hospital K. In a study conducted in OPD in Teaching Hospital in Pokhara (Shankar, P. R. *et al*., 2007), the most prescribed NSAIDS was Diclofenac (21.3%). The use of Aceclofenac over Diclofenac might have come because Aceclofenac was found more superior to Diclofenac in terms of epigastric discomfort, dyspepsia, abdominal, and also, compliance was better with Aceclofenac (Kanaki, A. R. *et al*., 2013). Proton pump inhibitors (PPIs) were the most commonly used concurrent medications in our study. Gastrointestinal side effects are associated with the use of NSAIDs (Lanas, A. 2006). PPIs provided potent and long durable inhibitors of gastric acid secretion and had irritating ability in healing NSAIDs related ulcers (Scheiman, J. M. 2013). NSAIDs prescribed were different for two hospitals (ten days for hospital M and seven days for hospital K). This varied in days might be associated with recommended days for different cases varies. The prescription of NSAIDs for fever and analgesia shall not exceed three days and ten days, respectively (Hersh, E. V. *et al*., 200).

CONCLUSION

NSAIDs were the frequently prescribed drugs in the orthopedic OPD of both Hospitals. Joint pain was the most commonly encountered diagnosis during the study period. Out of total prescriptions studied, Aceclofenac was mostly prescribed conventicle non-selective NSAIDs. Along with NSAIDs, PPIs were also prescribed frequently. Based on a recommendation, NSAIDs were used for a short duration.

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