Mediscope The Journal of GMC

ORIGINAL ARTICLE

Prescription of analgesics in orthopaedic outpatient department at a tertiary health care facility

S Nazrina[1], MNI Khan[2], AA Maruf[3]

Abstract

The objective of the present prospective cross sectional descriptive study was to evaluate the prescribing pattern of analgesic drug by orthopaedic surgeons in outdoor patients. This study was conducted in the orthopaedic outpatient department (OPD) of the Department of Orthopaedics, Border Guard Hospital, Pilkhana, Dhaka for six months period from January 2016 to June 2016. Randomly selected 324 prescriptions were collected from the attending patients on OPD and analyzed. The details of prescribed drugs, various analgesics, monotherapy or combined therapy and use of generic name were analyzed. Among the 324 study prescriptions, males and females were 63.9% and 36.1%, respectively. Majority of patients (80.8%) were within 31-60 years of age. Different classes of drugs were prescribed: non-selective non-steroidal anti-inflammatory drugs (NSAIDs) use was 45.2%, selective NSAIDs 2.9%, opioid analgesics 7.3%, H2 blockers 13.6%, proton pump inhibitors 17.1%, muscle relaxants 4.0%, benzodiazepines 8.1%, and other adjuvants 1.9%. Among individual analgesics: diclofenac 23.5%, aceclofenac 6.0%, ketorolac 6.9%, naproxane 10.8%, ibuprofen 3.7%, indomethacin 3.5%, etoricoxib 6.2%, tramadol 15.4% and paracetamol 24.0% were used. Of the 324 patients, 33.6% received combination of analgesics: diclofenac+paracetamol 37.6%, aceclofenac+paracetamol 14.7%, ketorolac+ paracetamol 20.2%, tramadol+paracetamol 22.9% and diclofenac+tramadol 4.6%. Use of trade names was for 80.5% drugs and generic names for 19.5% drugs. NSAIDs were widely prescribed drugs. Use of selective was less comparing to non-selective NSAIDs. Tramadol was the most commonly prescribed opioid drug. Gastro protective agents were used with NSAIDs. Prescribers need to be encouraged to prescribe drugs only using generic names.

Key words: Orthopaedic outpatient department, prescription pattern, analgesics, trade name, generic name.

Introduction

Pain is defined by the International Association for the Study of Pain (IASP) as an unpleasant sensory and emotional experience associated to real or potential tissue injury or described in terms of such injury.[1] Pain associated with alterations of the musculoskeletal system frequently needs to be treated by an orthopaedic surgeon. Orthopaedic surgeons daily face with this symptom in their outpatient and inpatient department. Pain due to common orthopaedic causes are rheumatoid arthritis, osteoarthritis, chronic low back pain,

1. S Nazrina MBBS, MPhil, Assistant Professor, Department of Pharmacology, Armed Forces Medical College, Dhaka
2. MNI Khan, MBBS, MPH, Commanding Officer, Border Guard Hospital, Dhaka
3. AA Maruf MBBS, FCPS, Department of Anaesthesia & Intensive Care, Border Guard Hospital, Dhaka

musculoskeletal pain, etc. Those affects a person's quality of life and general functioning and management of pain is the commonest as well as important reason for physician consultation.[2-4]

An analgesic (commonly known as painkiller) is a member of the diverse group of drugs used to relieve pain. Analgesic drugs act in a variety of ways on the peripheral and central nervous systems; they include paracetamol, NSAIDs such as diclofenac, narcotic drugs such as morphine, synthetic drugs having narcotic properties such as tramadol, and others. In the last decade, NSAIDs have played a central role in painful orthopaedic indications. NSAIDs make up one of the largest group of pharmaceutical agents used worldwide, constituting more than 20% of all prescribed drugs.[5]

The irrational and inappropriate use of drugs is a well documented universal problem and is a major concern for developing countries, as has been recognized by the World Health Organization (WHO).[6] At present the prescribing pattern is changing and it has become just an indication of medicine with some instructions of doses without considering its rationality.[7] Irrational drug use leads to reduction in the quality of drug therapy, wastage of resources, increased treatment cost, increased risk for adverse drug reactions and emergence of drug resistance.[8] Apart from helping in alleviating pain symptoms, these analgesics have side effects which may be detrimental to the quality of life of patients. The most severe side effects include dependence and tolerance among the opioids and gastric ulceration among the NSAIDs.[9] Therefore, research into analgesic usage is important in health facilities including orthopaedic outpatient department (OPD). It is a form of medical audit about the prescribing pattern of analgesic drug among orthopaedic surgeons in outdoor patients.

Therefore, the objective of this study was to assess the analgesic usage among physicians at the orthopaedic OPD of this tertiary health facility.

Materials and Method

This prospective cross sectional descriptive study was conducted at Border Guard Hospital, Pilkhana, Dhaka, Bangladesh within a period of 6 months from January 2016 to June 2016. This hospital is a tertiary health care facility with 400 beds. In the orthopaedic OPD of the hospital, 324 issued prescriptions were randomly collected from the attending patients on outdoor dates. Those prescriptions containing no prescribed analgesics were excluded from the study. Institutional ethical committee approval was obtained prior to the study procedure.

The following parameters were given consideration: age and sex distribution, diagnosis, various classes of drugs prescribed, details of analgesic drugs prescribed, combination of analgesic drugs prescribed, and use of generic name in drugs prescribed.

Results were reported using descriptive statistics (Microsoft Excel 2007; Microsoft Corporation) and expressed as percentage (%) where appropriate.

Results

In the six months period of study, a total of 324 prescriptions were collected and analyzed. Gender distribution is shown in Fig. 1. Among them males and females were 207 (63.9%) and 117 (36.1%), respectively. Age distribution of patients is shown in Fig. 2. Majority of patients (80.8%) were within 31-60 years of age. Diseases diagnosed in the prescription are shown in Fig. 3. They include lumbar spondylosis 101 (31.2%), osteoarthritis 73 (22.5%), fracture 67 (20.7%), cervical spondylosis 51 (15.7%), joint dislocation 12 (3.7%), and other conditions like non specific musculoskeletal pain, bursititis, sinuvitis, etc 20 (6.2%). Classes of drugs prescribed are shown in Table 1. Different classes of drugs of total 919 drugs were prescribed in 324 patient's prescriptions. The total number of non-selective NSAIDs used was 415 (45.2%): selective NSAIDs

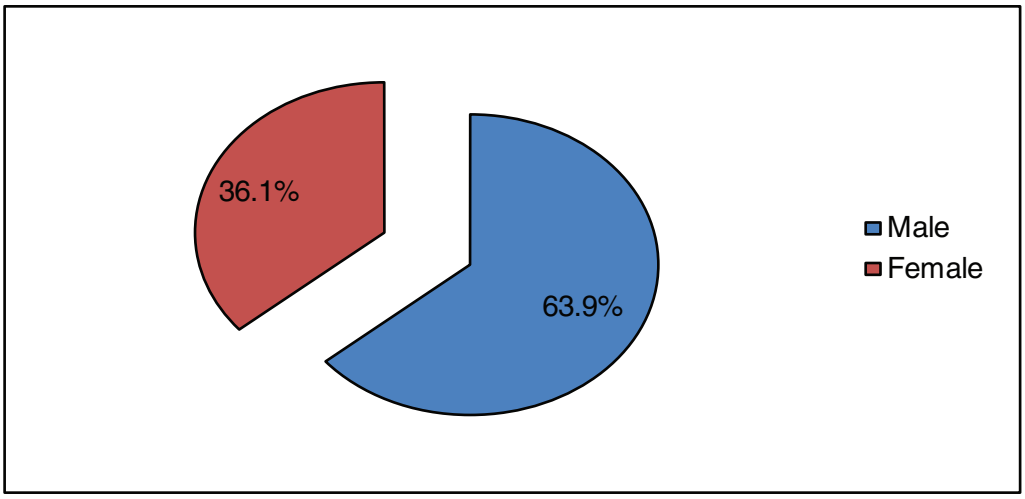

Fig. 1. Gender distribution of the patients.

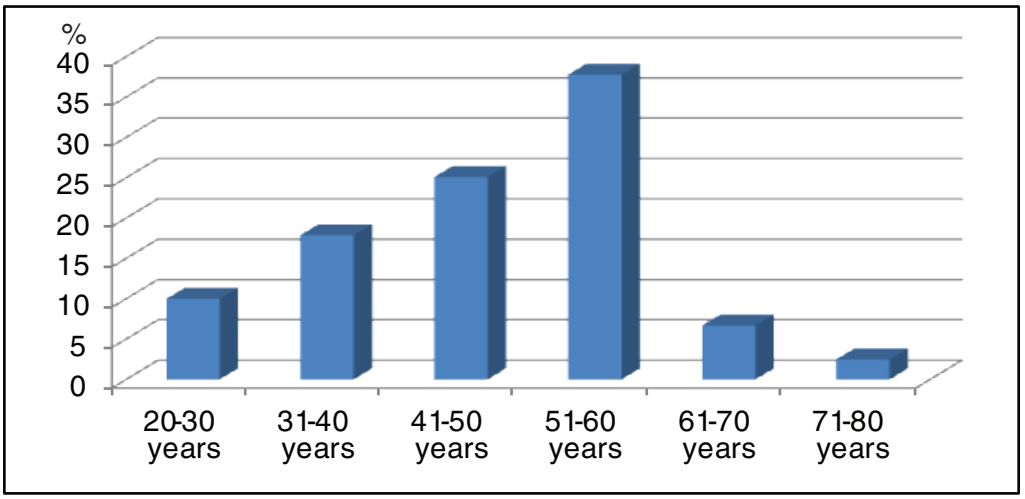

Fig. 2. Age distribution of the patients.

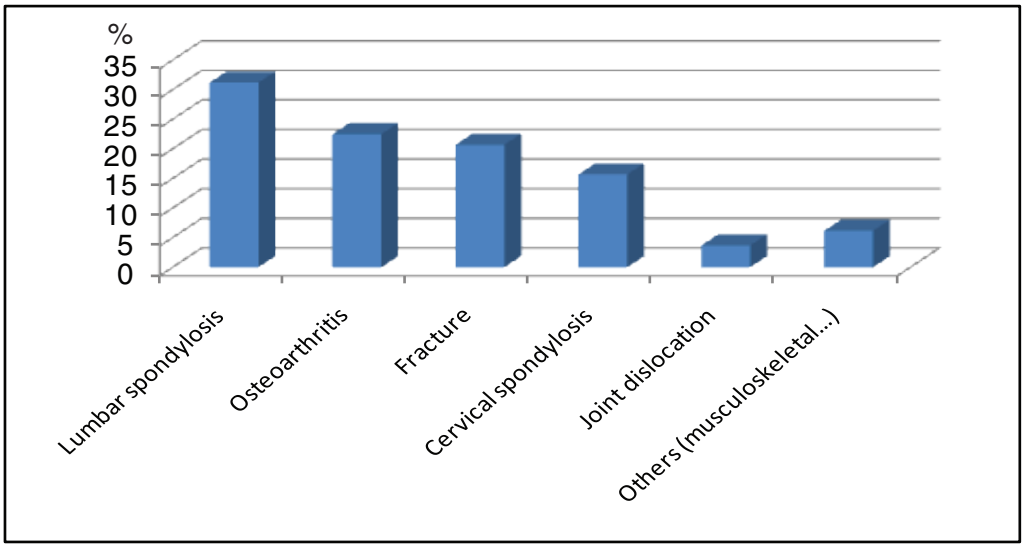

Fig. 3. Diagnosed diseases of the patients.

Mediscope 2017;4(1):11-17

Table 1. Classes of drugs prescribed

Class of drugs	Number of prescriptions	Percentage
Non-selective NSAIDs	415	45.2
Selective NSAIDs	27	2.9
Opioid analgesics	67	7.3
H_2 Blocker	125	13.6
Proton pump inhibitor	157	17.1
Muscle relaxant	37	4.0
Benzodiazepins	74	8.1
Others (gabapentine, pregabalin, amitriptalin, etc)	17	1.9
Total	919	100.0

Table 2. Details of prescribed analgesic drugs

Name of analgesic drugs	Number of prescriptions	Percentage
Diclofenac	102	23.5
Aceclofenac	26	6.0
Ketorolac	30	6.9
Naproxane	47	10.9
Ibuprofun	16	3.7
Indomethacin	15	3.5
Etoricoxib	27	6.2
Tramadol	67	15.5
Paracetamol	104	24.0
Total	434	100.0

Table 3. Details of prescribed combination of analgesic drugs

Combination	Number of prescriptions	Percentage
Diclofenac + Paracetamol	41	37.6
Aceclofenac + Paracetamol	16	14.7
Ketorolac + Paracetamol	22	20.2
Tramadol+ Paracetamol	25	22.9
Diclofenac + Tramadol	5	4.6
Total	190	100.0

27 (2.9%), opioid analgesics 67 (7.3%), H_2 blockers 125 (13.6%), proton pump inhibitors (PPIs) 157 (17.1%), muscle relaxants 37 (4.0%), benzodiazepines 74 (8.1%), and other adjuvants (gabapentin, pregabalin, amytriptaline) 17 (1.9%). Details of prescribed analgesic drug are shown in Table 2. Different analgesic drugs of total drugs were prescribed in 324 patient's prescriptions. Frequencies of prescribed analgesic drugs were diclofenac 102 (23.5%), aceclofenac 26 (6.0%), ketorolac 30 (6.9%), naproxen 47 (10.9%), ibuprofen 16 (3.7%), indomethacin 15 (3.5%), etoricoxib 27 (6.2%), tramadol 67 (15.5%), and paracetamol 104 (24.0%).

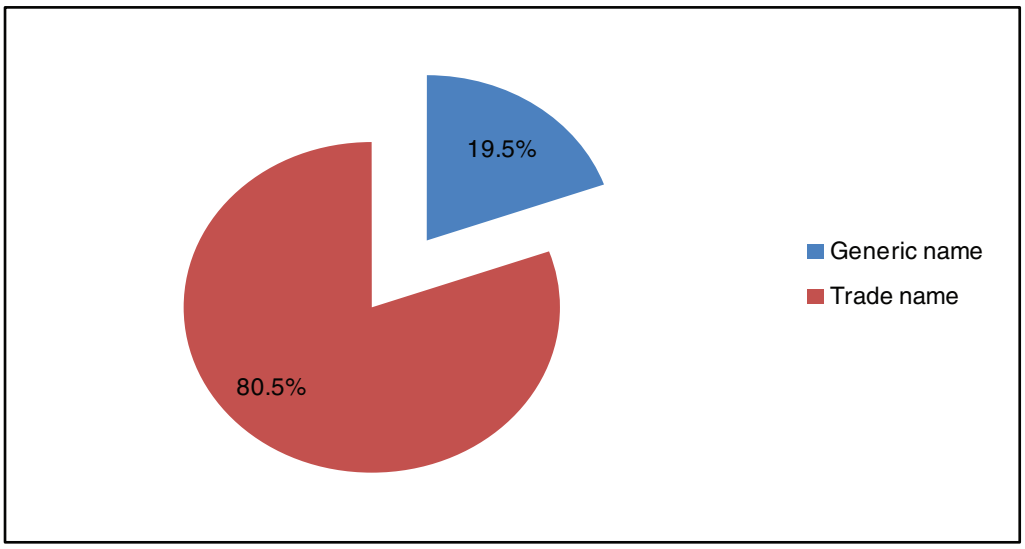

Fig. 4. Use of generic name of drugs in prescriptions.

Prescribed combination of analgesic drugs is shown in Table 3. Of the 324 patients, 109 (33.6%) received combination of analgesics: diclofenac+paracetamol 41 (37.6%), aceclofenac+paracetamol 16 (14.7%), ketorolac+paracetamol 22 (20.2%), tramadol+paracetamol 25 (22.9%) and diclofenac+tramadol 5 (4.6%). Uses of generic name in prescription were shown in Fig. 4. The use of trade names was for 740 (80.5%) drugs and generic name for 179 (19.5%) drugs.

Discussion

In 1986, the WHO proposed that health professionals use analgesic medications via a systematic plan.[10] The systematic plan is a three-step ladder approach relevant to pain management for all types of pain, including pain at end of life. In 2015, the scientific community discussed this approach and suggested other classifications based on clinical efficacy or pain mechanisms. A mechanistic approach is probably more appropriate. Concerning chronic pain, nociceptive inflammatory pain could be treated by reducing inflammation with steroids or NSAIDs, non-inflammatory nociceptive pain by opioid and non-opioid analgesics.[11] The goal of medical management of the patient with orthopaedic pain is to relieve these symptoms with minimal side effects and inconvenience. Pain associated with inflammation may be relieved with NSAIDs. All NSAIDs relieve pain and stiffness in a similar manner; their primary action appears to be the inhibition of the cyclooxygenase system in the arachidonic acid cascade. However, safety and low incidence of side effects are the most important factors in determining appropriate therapy.[12]

Although most of studies have shown the more use of NSAIDs for orthopaedic pain in female patients than male.[13,14] Because after 40 yrs female show more osteoporosis due to hormonal disturbance. Donna et al have stated that there is a gender differences in frequency and intensity of pain.[15] Women often report lower pain thresholds, higher pain ratings, and lower tolerance for pain. Present study shows the opposite because Border Guard Hospital is specially mend for border guard troops with their families. Similar results have been reported in St. John's Medical College, Bangalore, India.[16]

In this study, a majority of the patients were between the age range of 31-60 years. The major NSAIDs users are in 31-60 age groups. Fosbol found that increasing age was associated with increased use of NSAIDs.[17] Also Johnson found in his study that usage of NSAIDs was higher between 45 and 64 years, the result of those studies coincide with the present study.[18]

This study shows that conventional non-selective NSAIDs were especially used in orthopaedic OPD. Selective NSAIDs continue to be used, but their use declined probably due to the increased risk of heart attack and stroke associated with etoricoxib and other coxibs.[19] Among opioid analgesics, synthetic opioid like tramadol was the most commonly prescribed drug either alone or in combination with NSAIDs and paracetamol. Benzodiazepines and other adjuvants (gabapentin, pregabalin, amytriptaline) were used in 9.9%. Paracetamol was found to be the most commonly prescribed drug as combination with other analgesics. This may be as a result of its low cost when compared to other analgesics prescribed yet showing adequate efficacy as analgesic and antipyretic at the same time having minimal side effects. Similar observation was made in some studies conducted in Ghana and Bangladesh where paracetamol found to be frequently prescribed analgesic in hospitals.[20,21]

The risks of upper gastro intestinal toxicity associated with non-selective NSAIDs have been extensively studied. Case-control studies and meta-analyses have shown that the risk of upper gastro intestinal complications is increased in NSAID users, compared with non-users.[22,23] The use of H_2 blockers and PPIs concurrently with non-selective NSAIDs clearly shows that gastro intestinal discomfort is a very significant consideration while prescribing these non-selective NSAIDs. It is observed in this study that H_2 blockers and PPIs were prescribed concurrently with non-selective NSAIDs.

In the present study, more than 80% of the drugs were prescribed using their trade names. Results obtained from this study is also similar with researches carried out in India and Cyprus where only 10.3% and 20% of analgesics were prescribed using generic names.[24] Result obtained from the present study is also not in line with that from researches conducted in Ghana where 79.1% of analgesics were prescribed using generic names.[20] Prescriptions using generic names have got special importance for rational use of drug as regards to cost, safety and efficacy by permitting the identification of the products by its scientific names.[25]

The limitation of the study is that the main co-morbid conditions, seasonal variations in disease and the adverse effects of NSAIDs were not possible to take into account.

Conclusions

The study provides an overview about utilization of analgesic drugs among orthopaedic outpatients in Border Guard Hospital, Pilkhana Dhaka. NSAIDs were widely prescribed drugs. Use of selective NSAIDs was less comparing to non-selective NSAIDs. Tramadol was the most commonly prescribed opioid drug. Paracetamol was found to be the most commonly prescribed drug as combination with other analgesics. Gastro protective agents were used with NSAIDs. Though prescribing was found to be largely rational but most of the drugs were prescribed using trade names. Prescribers need to be encouraged to prescribe drugs only using generic names.

References

1. International Association for Study of Pain (IASP). Consensus development conference statement: the integrated approach to the management of pain. J Accid Emerg Med 1994;6(3):292-491.
2. Turk DC. Clinical effectiveness and cost effectiveness of treatments for patients with chronic pain. Clin J Pain 2002;18(6):355-65.
3. Turk DC, Swanson KS, Tunks ER. Psychological approaches in the treatment of chronic pain patients- when pills, scalpels, and needles are not enough. Can J Psychiatry 2008;53(4):213-23.
4. Breivik H, Borchgrevink PC, Allen SM, et al. Assessment of pain. Br J Anaesth 2008;101(1):17-24.

4. Breivik H, Borchgrevink PC, Allen SM, et al. Assessment of pain. Br J Anaesth 2008;101(1):17-24.
5. Pincus T, Swearingen C, Cummins P, Callahan LP. Preference for non-steroidal anti-inflammatory drugs versus acetaminophen and concomitant use of both types of drugs in patients with osteoarthritis. J Rheumatol 2000;27(4):1020-7.
6. Hogerzeil HV. Promoting rational prescribing: an international perspective. Br J Clin Pharmacol 1995;39(1):1-6.
7. Gaud RS, Jain DK, Kaskhedikar SG, Chaturvedi SC. Critical evaluation of present prescribing pattern. Indian J Hosp Pharm 1989;26:70-2.
8. Bhartiy SS, Shinde M, Nandeshwar S, Tiwari SC. Pattern of prescribing practices in the Madhya Pradesh, India. Kathmandu Univ Med J 2008;6:55-9.
9. Beers MH, Berkow R et al. Pain. In: The Merck Manual of Diagnosis and Therapy, 17th Ed. Merck Research Laboratories, 1999.
10. World Health Organization. Cancer pain relief. Geneva: WHO, 1986.
11. Lussier D and Beaulieu P. Toward a rational taxonomy of analgesic drugs. In: Beaulieu et al (eds) Pharmacology of pain. IASP Press, Seattle, 2010:27-40.
12. Fetrow KO. The management of pain in orthopaedics. Clin J Pain 1989;5(Suppl 2):S26-S35.
13. Shi W, Wang YM, Li SL, et al. Risk factor of adverse drug reaction from non-steroidal anti-inflammatory drugs in Shanghai patients with arthropathy. Acta Pharmacol Sin 2004;25(3):357-65.
14. Motola D, Vaccheri A, Sivani MC, et al. Pattern of NSAID use in the Italian general population: a questionnaire-based survey. Eur J Clin Pharmacol 2004;60(10):731-8.
15. Donna K, McClish, James L, et al. Gender difference in pain and healthcare utilization for adult sickle cell patients. J Womens Health 2006;15(2):146-54.
16. Sushma M, Noel MV, Ritika MC, James J, Guido S. Cutaneous adverse drug reaction: a 9 year study from a South Indian Hospital. Pharmacoepidemiol Drug Saf 2005;14(8):567-70.
17. Johnson AG, Day RO. The problems and pitfalls of NSAID therapy in the elderly (part I). Drugs Aging 1991;1:130-43.
18. EL Fosbol. The pattern of use of non-steroidal anti-inflammatory drugs (NSAIDs) from 1997 to 2005: a nation-wide study on 4.6 million people. Pharmacoepidemiol Drug Saf 2008;17(8):822-33.
19. Brunton LL, Chabner BA, Knollman BC. Goodman & Gilman's: The Pharmacological Basis of Therapeutics. 12th Ed. New York: McGraw-Hill Companies Inc., 2011.
20. Owusu-Ansah SA. Analgesic use at the polyclinic OPD of Komfo Anokye teaching hospital. A thesis submitted to the Department of Clinical and Social Pharmacy, Kwame Nkrumah University of Science and Technology, 2009.
21. Rahman S, Begum ZA, Samad K. Prescribing pattern of nonsteroidal anti-inflammatory drugs at outpatient departments of teaching hospitals. Bangladesh J Pharmacol 2007;2:1-6.
22. Garcia Rodriguez L, Hernandez-Diaz S. Relative risk of upper gastrointestinal complications among users of acetaminophen and nonsteroidal anti-inflammatory drugs. Epidemiology 2001;12(5):570-6.
23. Pérez Gutthann S, Garciá Rodríguez LA, Raiford DS. Individual nonsteroidal anti-inflammatory drugs and other risk factors for upper gastrointestinal bleeding and perforation. Epidemiology 1997;8(1):18-24.
24. Hayas Mohammed TC, Mufida Beegum I, Perumal P. Prescribing pattern of analgesics in a tertiary care hospital. Int J Pharm Tech Research 2011;3(3):1521-9.
25. Ara F, Chowdhury SAR. Pattern of drug use for under-five children in acute respiratory infections in three selected teaching hospitals in Dhaka city. Bangladesh J Physiol Pharmacol 2001;17(1):33-6.

Suggestion for citation of the above:
Nazrina S, Khan MNI, Maruf AA. Prescription of analgesics in orthopaedic outpatient department in a tertiary health care facility. Mediscope 2017;4(1):11-7