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The Most Prescribed Analgesics In The Emergency Clinic At The University Clinical Hospital Service Of Kosovo In The Period January - March 2022

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Abstract

Introduction -An important aspect of pain management, whether acute or chronic, is the administration of medications, namely analgesics. They are given to reduce and control pain, reduce risks, and reduce the incidence of more serious complications.

The aim –of this study is to see the prescription of analgesics in UCHSK, their role, and importance, and the literature review regarding the dosage, the way, and of the certain doses.

Methodology - This is descriptive research that aims to show the quantity of the most prescribed analgesics. The study was carried out in the Emergency Center near UCHSK in Prishtina, for the collection of all data sources such as documentation, protocols of medical visits where emergency cases were documented, and the treatment they received, during the period January-March 2022.

The results - literature review results have provided detailed information regarding analgesics, the way of administration, the best possible ways of administering medications, and the best management.

Conclusions –The study results reveal that analgetics-opioids, familiarity with the drug, the way of administering the drug, and their side effects reduce the complications they cause. Furthermore, good management affects the patient's emotional state and his psychological preparation and enables the team of health professionals to achieve successful results.

Keywords –

I. INTRODUCTION

The International Association for the Study of Pain defines pain as "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". The sensation of pain is the net result of activity in two opposing neuronal pathways. The first pathway carries pain impulses from the origin site to the brain, thereby generating pain sensations. The second pathway, which originates in the brain, suppresses the conduction of the impulse along the first pathway and thus reduces the sensation of pain. Nociceptive pain has two forms, known as somatic and visceral. Somatic pain results from injury to somatic tissues (eg, bones, joints, muscles), while visceral pain results - ambiguously - from damage to

internal organs (eg, small intestine). Patients generally describe somatic pain as localized and sharp in quality. In contrast, they describe visceral pain as localized with a diffuse aching quality. (A.Lehne, 2007).

II. Purpose of the Study

The purpose of this study was to the prescription of analgesics in the Emergency Clinic at the University Clinical Hospital Service, the most prescribed analgesics in the time interval January - March 2022, their effectiveness, their role and importance in eliminating pain, dosage, according to the protocols and prescribed dosages. In addition, this study aims to present the number of prescriptions of analgesics and the way of their administration (IM, IV, or PO). Also, the study presents the number of patients who received analgesics for the period January-March 2022 and the gender difference in terms of receiving analgesics.

III. Work Methodology And Material

This study is of a research-descriptive nature that we aim to identify the most prescribed analgesics in the Emergency Clinic in the University Clinical Hospital Service in the period of three months: January, February, and March 2022. UCHSK in Pristina Kosovo. For the collection of information about analgesics, sources such as the book of protocols and documentation (recipes) were used, where the cases of emergency pain and their treatment and treatment with analgesics in the three-month period were documented. The results will be published in tabular and graphics.

IV. Results: Empirical Presentation Of The Study

The results are presented in tabular and graphical form in this part of the research. Presentation of the Results for the month of January: Overall number of patients seeking help in the emergency Clinic during January was 33 patients, the table below gives results by gender.

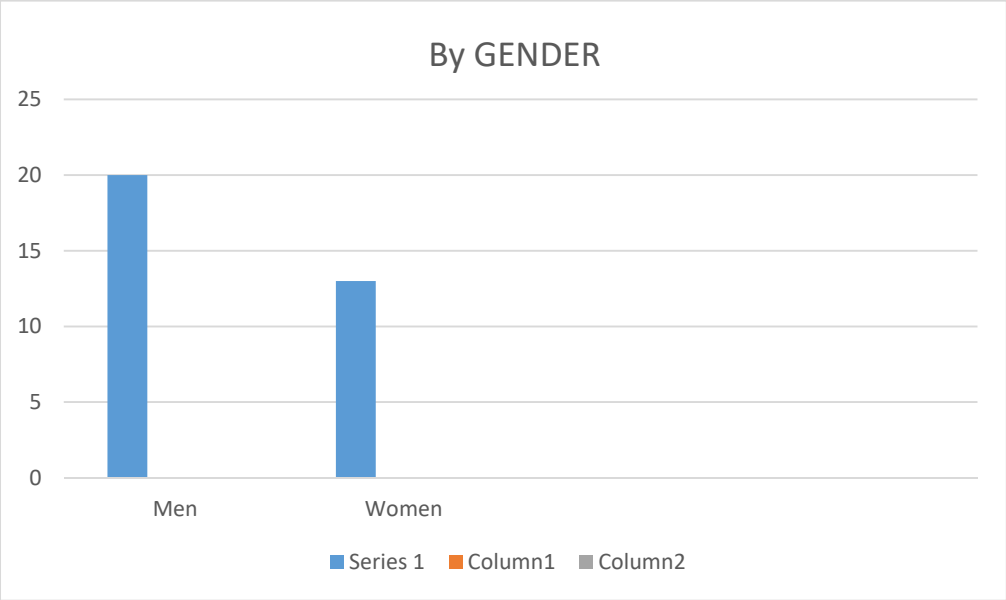

Figure 1 Results by gender during January

In the presentation of the results above, we note that, in the month of January, the UCHSK Emergency Center in Pristina recommended analgesics to a total of 20 men and 13 women.

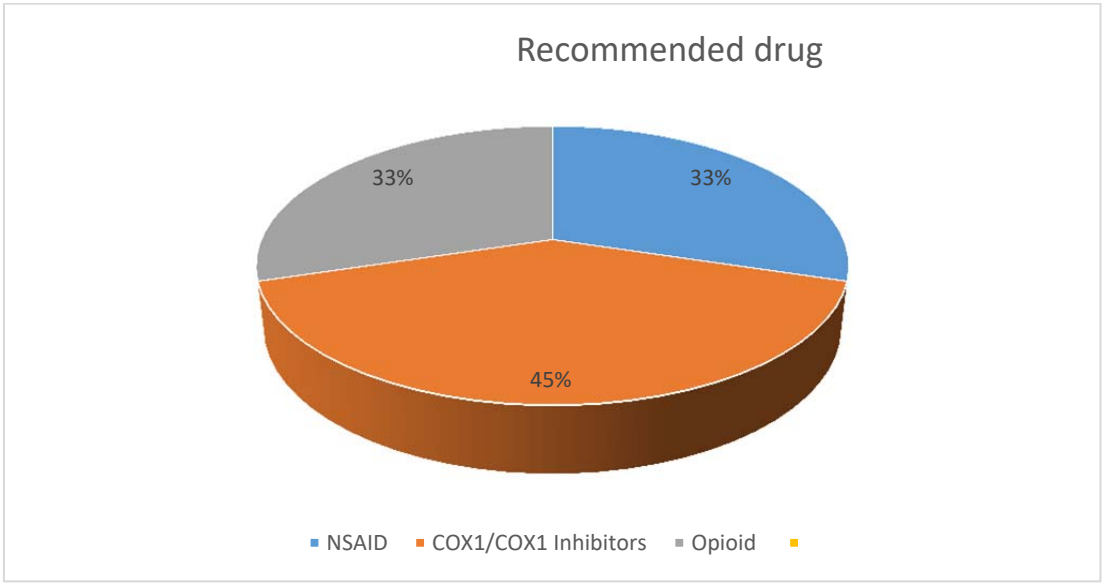

Figure 2 Recommended drugs, January

In the figure above, we note that the most recommended Analgesics to patients were COX1/COX2 Inhibitors at 45%, Opioids at 33% while only 22% recommended non-steroidal anti-inflammatory drugs NSAID.

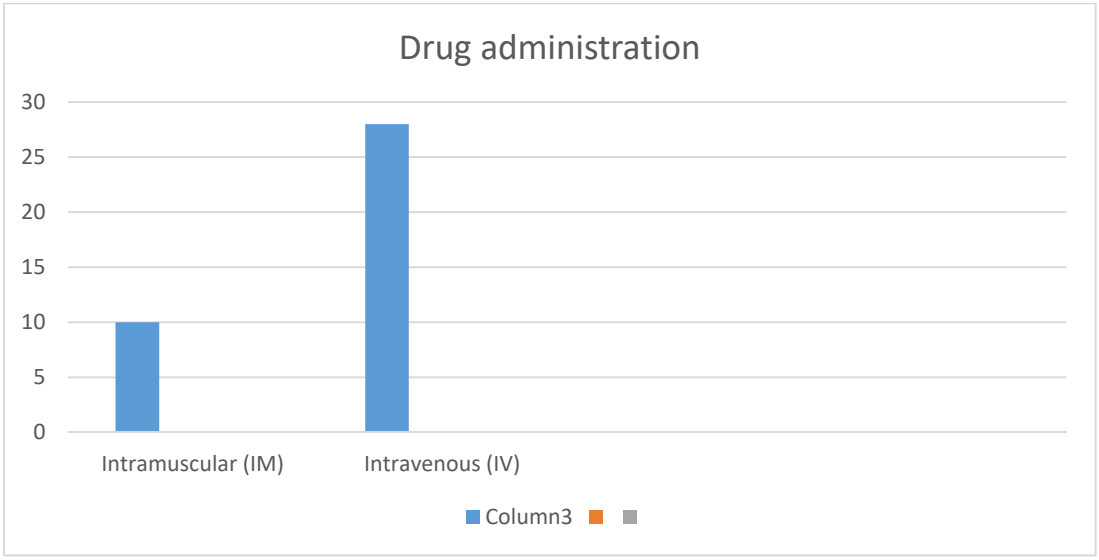

Figure 3. Drug administration during the month of January

We note that 10 patients were recommended intramuscular (IM) therapy, while 28 patients were recommended intravenous (IV) therapy.

V. Result Presentation In February

During February, in the Emergency Center at UCHSK, analgesics were recommended to a total of 65 patients. Drug administration in the table below is presented by gender.

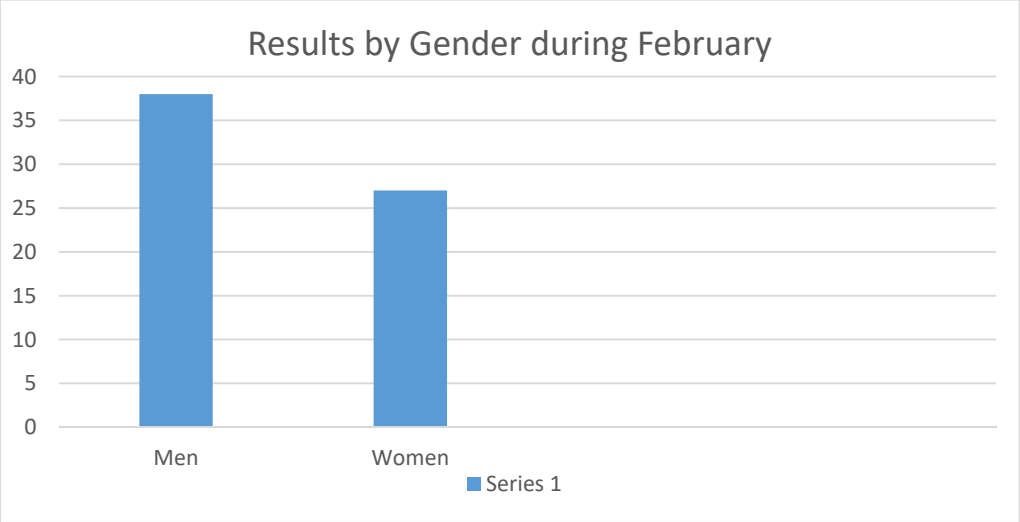

Figure 4. Resulsts by Gender during February

According to the above results, we note that 38 patients were male and 27 patients were female.

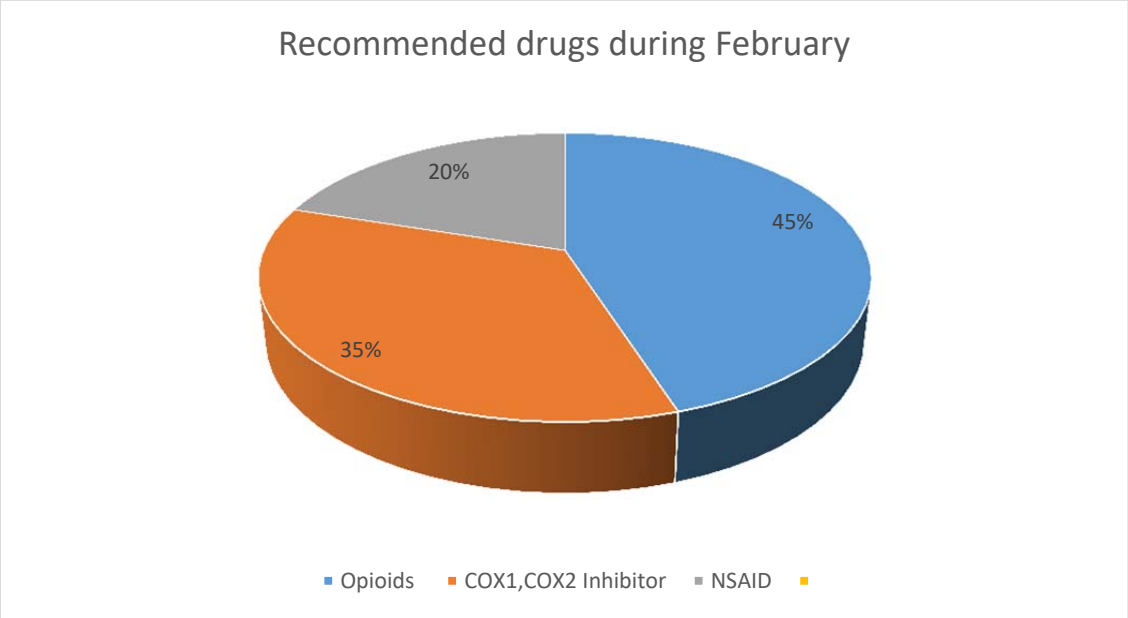

Figure 5. Recommended drugs during February

It is noted that during the month of February, Opioids at 45% and COX1, COX2 Inhibitors at 35% were the most recommended analgesics, followed by NSAID at 20%.

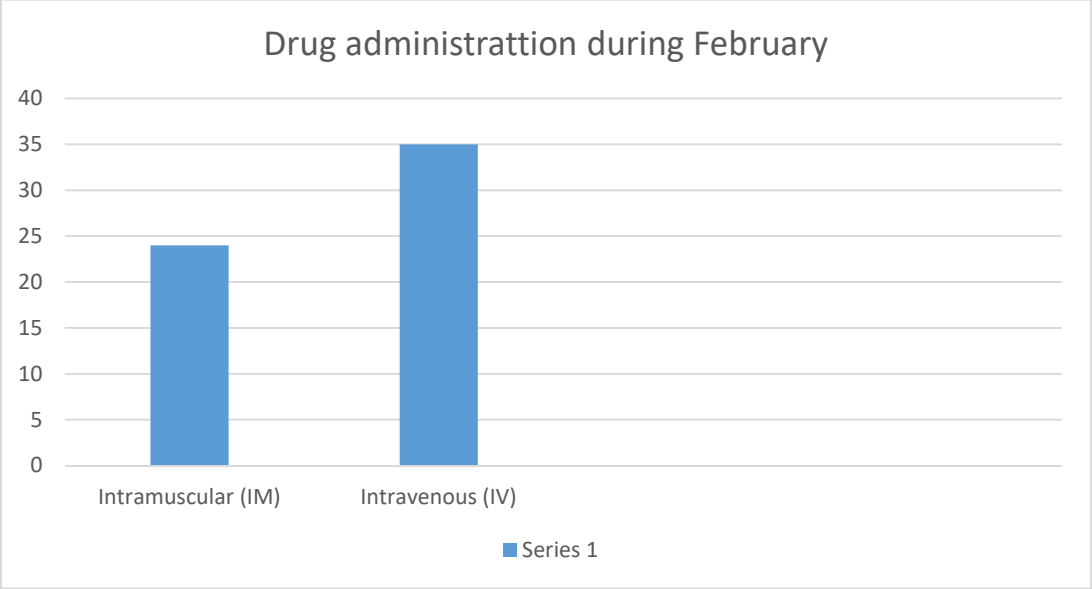

Figure 6. Drug administrattion during February

24 patients were recommended intramuscular (IM) therapy during February, while intravenous (IV) therapy was recommended to 35 patients.

VI. Result Presentation During March

Data collected during March, show that analgesics were recommended to a total of 54 patients in the Emergency Center at UCHSK. Presented by gender in the table below.

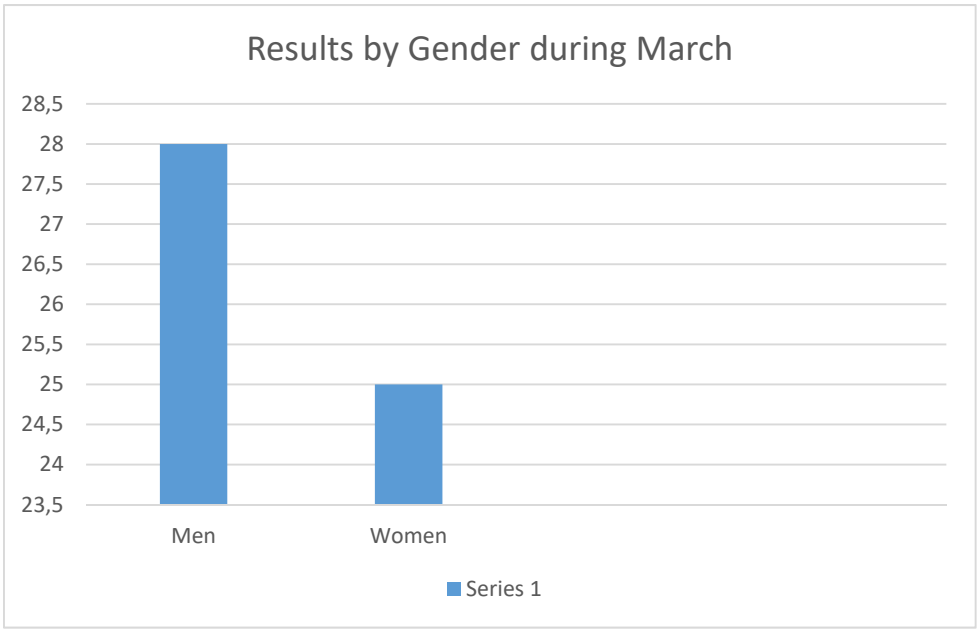

Figure 7. Results by gender during March

According to the above results, we note that out of 28 patients were male and 25 patients were female.

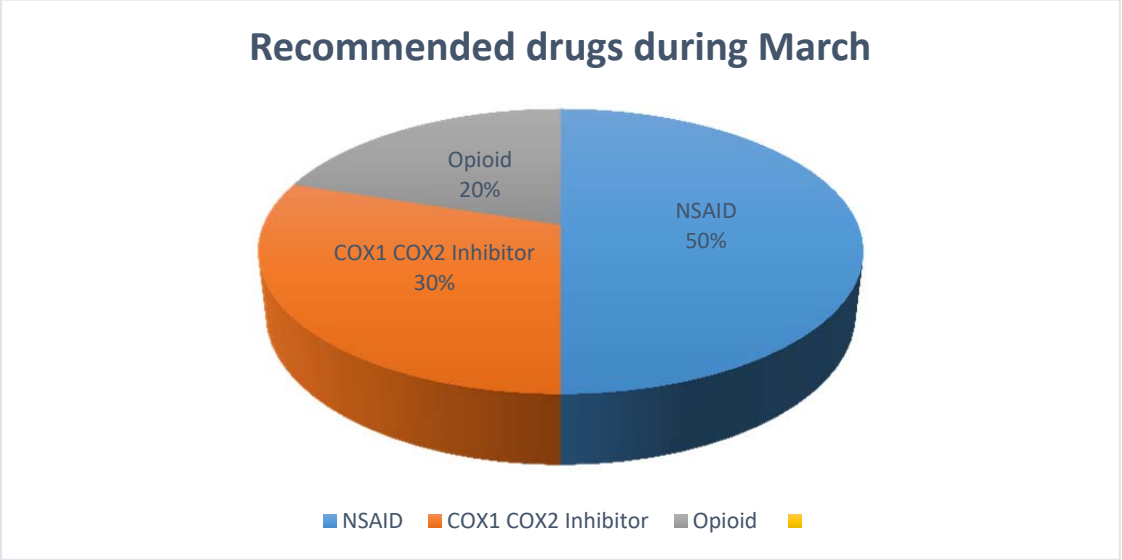

Figure 8. Recommended drugs during March

As it is shown in the table above, the most recommended Analgesics among patients were COX1/COX2 Inhibitors at 30%, 50% non-steroidal anti-inflammatory drugs NSAID, and Opioids at 20%.

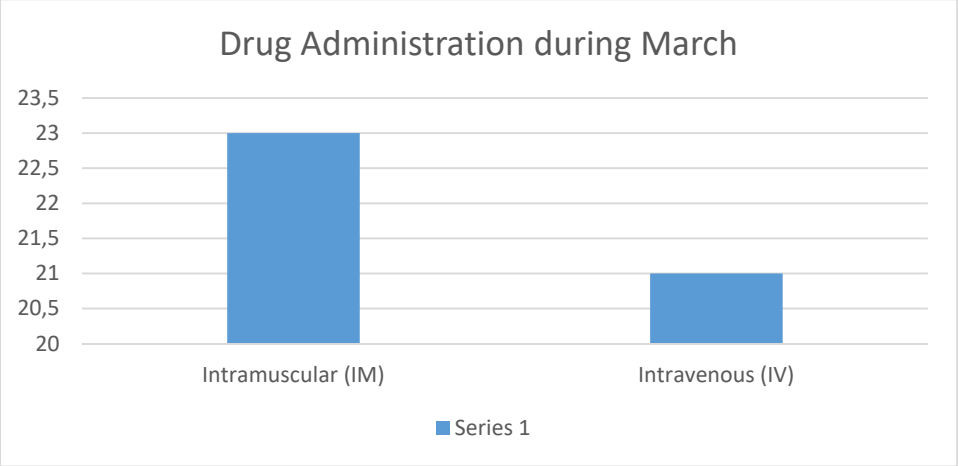

Figure 9. Drug Administration during March

23 patients were recommended intramuscular (IM) therapy while 21 patients were recommended intravenous (IV) therapy.

VII. Discussion

Pain intensity scales are useful tools for assessing pain intensity. Descriptive scale and numerical scale are used for adults and older children. The FACES Pain Touch Scale is used for young children and cognitively impaired patients who may have difficulty understanding the descriptive and numerical scale.

Continuous Assessment. Once a treatment plan has been implemented, pain should be reassessed frequently. The objective is to determine treatment efficacy and allow early diagnosis and treatment of new pain. Whenever an analgesic drug is administered, pain should be assessed after sufficient time has passed for the drug to take effect (A.Lehne, 2007).

DRUG THERAPY

Analgesic drugs are the most powerful weapons we have to defeat cancer pain. With proper use, these agents can relieve pain in 90% of patients. Because analgesics are so effective, drug therapy is the primary modality for pain management. Three types of analgesics are used:

- Nonopioid analgesics (nonsteroidal anti-inflammatory drugs [NSAIDS] and acetaminophen)
- Opioid analgesics (eg, oxycodone, morphine)
- Adjuvant analgesics (eg, amitriptyline, carbamazepine, dextroamphetamine)

Nonsteroidal anti-inflammatory drugs – NSAID

NSAIDs (eg aspirin, ibuprofen) can produce a variety of effects. The main beneficial effects are pain relief, suppression of inflammation, and reduction of temperature. The primary side effects are gastric ulcers, acute renal failure, and bleeding. In addition, all NSAIDs except aspirin increase the risk of thrombotic events (eg, myocardial infarction, stroke). Unlike opioids, NSAIDs do not cause tolerance, physical dependence, or psychological dependence**.** NSAIDs are effective analgesics that can relieve mild to moderate pain. All NSAIDs have essentially equal analgesic efficacy, although individual patients may respond better to one NSAID than another. NSAIDs relieve pain by a different mechanism than opioids. As a result, the combined use of an NSAID with an opioid can provide greater pain relief than either agent alone. NSAIDs produce their effects—good and bad—by inhibiting cyclooxygenase (COX), an enzyme that has two forms, known as COX-1 and COX-2. Most NSAIDs inhibit both COX-1 and COX-2, although some are COX-2 selective.

The opioid is a general term defined as any drug, natural or synthetic, that has actions similar to those of morphine. The term opiate is more specific and applies only to the ingredients present in opium (eg morphine, codeine). The term narcotic has had so many definitions that it may not be used accurately. Narcotic is used implying an analgesic, a central nervous system (CNS) depressant, and any drug that can cause physical dependence. Narcotic has also been used in a legal context to designate not only opioids but also drugs as diverse as cocaine, Marijuana, and lysergic acid diethylamide (LSD). Because of its more precise definition, opioid is clearly preferable to narcotic as a label for a distinct family of pharmacologic agents (A.Lehne, 2007).

DOSAGE AND ROUTES OF ADMINISTRATION.

Oral. Oral administration is generally reserved for patients with chronic, severe pain, such as that associated with cancer. Because oral morphine undergoes extensive metabolism on its first pass through the liver, oral doses are usually higher than parenteral doses. A typical dose is 10 to 30 mg repeated every 4 hours as needed. However, oral dosing is highly individualized and therefore some patients may need 75 mg or more. Controlled-release formulations can be administered every 8 to 12 hours, and the extended-release formulation [Avinza] is given every 24 hours. Patients should be instructed to swallow these products intact, without crushing or chewing.

Intramuscular and subcutaneous. Both routes are painful and unreliable, and therefore should generally be avoided. For adults, the dosage is started at 5 to 10 mg every 4 hours, and then adjusted up or down as needed. The usual dose for children is 0.1 to 0.2 mg/kg, repeated every 4 hours as needed.

Intravenous. Intravenous morphine should be infused slowly (over 4 to 5 minutes). Rapid IV injection can cause serious adverse effects (profound hypotension, cardiac arrest, respiratory arrest) and should be avoided. When IV injections are given, an opioid antagonist (eg, naloxone) and respiratory support equipment should be available. Injections should be given with the patient supine to minimize hypotension. The usual dose for adults is 4 to 10 mg (diluted in 4 to 5 ml of water for injection). The usual pediatric dose is 0.05 to 0.1 mg/kg.

Methadone

It is a synthetic, orally effective opioid that is approximately equal in potency to morphine, but produces less euphoria and has a longer duration of action.

Mechanism of action: Methadone has the greatest action on μ receptors. (Richard A.Harvey, 1992)

Actions: The analgesic activity of methadone is equivalent to morphine. Methadone shows strong analgesic action when taken orally, which is in contrast to morphine, which is only partially absorbed from the gastrointestinal tract. The miotic and respiratory depressant actions of methadone have an average half-life of 24 hours. Same to morphine Methadone increases biliary pressure. (Richard A.Harvey, 1992)

Fentanyl - Has 80 times more analgesic power than morphine. This highly potent opioid has a rapid onset and short duration of action (15-30 minutes). When combined with droperidol it produces dissociative anesthesia. This medication is available for parenteral, transdermal, and transmucosal administration. Fentanyl is a semi-synthetic opioid characterized by high potency and lipophilicity, and a short half-life after bolus administration. Like all other highly lipid-soluble drugs, its elimination half-life is affected by the duration of the prior administration, which determines the extent of fat sequestration; at steady state, the elimination half-life is typically 7 to 12 hours (Richard A.Harvey, 1992) (Cherny, 1997). Fentanyl-Self-adhesive patches provide transcutaneous delivery of the strong opioid. The patch is changed once every 72 hours. It is used with normal-release morphine for severe pain. It is only suitable for patients whose pain is stable due to the time required to titrate up the dose. It takes up to 24-48 hours before the maximum plasma concentration is reached (Marie Fallon, 2006).

OPIOID ANTAGONISTS

Opioid antagonists bind with high affinity to opioid receptors but fail to activate the receptor-mediated response. Administration of opioid antagonists does not produce profound effects in normal individuals. However, in opioid-dependent patients, antagonists rapidly reverse the effect of agonists, such as heroin, and precipitate opiate withdrawal symptoms (Richard A.Harvey, 1992).

Naloxone - Naloxone is used to reverse the coma and respiratory depression of opioid overdose. It rapidly displaces all receptors binds opioid molecules and therefore can reverse the effect of a heroin overdose. Within 30 seconds of intravenous injection of naloxone, respiratory depression and coma characteristics of high doses of heroin are the opposite, causing the patient to be awake and alert. Naloxone has a half-life of 60-100 minutes. Naloxone is a competitive antagonist at μ, K, and σ receptors. Naloxone has a 10-fold higher affinity for μ receptors than for k receptors. This may explain why naloxone readily reverses lifelong respiratory, depression with only minimal change in analgesia resulting from agonist stimulation of k receptors in the spinal cord (Richard A.Harvey, 1992).

Naltrexone - Naltrexone has similar actions to naloxone. This drug has a longer action duration than naloxone, and a single oral dose of naltrexone blocks the effect of injected heroin for up to 48 hours. Naltrexone is used in opiate addiction maintenance programs.

Nalfemene - Nalmefene [Revex] is a long-acting analog of naltrexone. The drug is approved for the reversal of postoperative opioid effects and the treatment of opioid overdose. Nalmefene should be used with caution in the treatment of overdose in suspected opioid-dependent patients because too much nalmefene may precipitate prolonged withdrawal.

Pharmacokinetics. Effects begin 2 minutes after IV injection (usual route) and peak within 5 minutes. The action duration depends on the dose: The effect may fade off within 30 to 60 minutes after a small dose and can last many hours after a large dose. Most importantly, when the dose of nalmefene is adequate, the effects last longer than those of most opioids. Nalmefene undergoes complete but slow hepatic metabolism, followed by renal excretion. The half-life is 11 hours—significantly longer than that of naloxone.

Preparations, dosage, and administration. Nalmefene [Revex] is available in two concentrations. The low concentration (100 mcg/mL), dispensed in blue-labeled ampoules, is used to reverse postoperative opioid effects. The high concentration (1 mg/mL), dispensed in ampoules with green labels, is used for opioid overdose. The usual route is IV. However, if IV access is impossible, nalmefene can be given IM. The doses are the same for all routes. (Richard A.Harvey, 1992)

VIII. CONCLUSIONS AND RECOMMENDATIONS

Based on the review of the literature and the analysis of the protocols in the Emergency Center UCHSK in Prishtina, this research issues the following conclusions and recommendations:

1. Analgesics are used pretty much in Kosovo.

2. During January – March 2022 period of time, a total of 157 patients were recommended analgesics.

3. COX1/COX2 inhibitors and non-steroidal anti-inflammatory drugs (NSAIDs) were the most recommended analgesics in the Emergency Center (UCHSK) in Pristina, during the January-March period.

4. COX1/COX2 inhibitors and NSAIDs were prescribed to about 96 patients.

5. the most dominant form of drug administration is Intravenous (IV), a total of 84 patients were recommended to receive the drug through intravenous (IV) injection.

RECOMMENDATIONS

Because the use of Opioids results in numerous side effects, such as biliary colic, orthostatic hypotension, nausea, miosis, urinary retention, and respiratory depression are situations that are difficult to manage, therefore it is recommended that the use of analgesics be done under the guidance or supervision of health professionals.

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