

Prevalence Of The Use Of Intravenous Opioids In The General Hospital In Vushtrri

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Abstract

Introduction-Opioids are medications that are given as an analgesic. During the intraoperative period, they are given intravenously, causing an analgesic effect during the entire period of keeping the patient under anesthesia. The purpose of this research is to gain knowledge on opioids and to assess the importance of opioid use during the operative period.

The methodology in this paper is based on statistical research done at the Regional Hospital of Vushtrri, among patients who underwent a surgical intervention. The statistics are taken from the protocols of 2021 in the period January-March.

The results of the research show us that opioids are unavoidable in general and regional anesthesia, precisely the results prove that the most used intravenous opioid is Fentanyl, in different doses in different patients and in the type of general or spinal anesthesia.

Results From the results it can be concluded that Fentanyl is the most used opioid, due to its actions. If it is administered in appropriate doses, the possibility of its negative effects is reduced.

Keywords – Opioids, Fentanyl, General Anesthesia, Regional Anesthesia

I. INTRODUCTION

Opioids or narcotics are used in anesthesia practice. They are used in anesthetic procedures in a balanced manner, which includes the use of opioids, nitrous oxide and oxygen, with a muscle relaxant, with a sedative.

The history of opioids shows us that over time and with the discovery of different types of substances, opioids are the ones that have always shown specific effects on the human body. This has made them more useful even in today's times for pain relief, for surgical procedures, but they are unfortunately and illegally used, thus being consumed by the population, especially young people. This paper also aims to help us know more about this group of substances and the positive and negative actions they cause, which made us understand that the only appropriate place for the use of opioids is medicine when they are prescribed by the doctor. This paper also proves to us that the most used opioid is fentanyl, intravenously. The history of Fentanyl, its action, negative effects, its absorption and its abuse give greater importance to fentanyl and definitely to this research. With all the concepts and methods of providing information in this paper, gathering material from reliable sources and also through the statistics presented by Vushtrri Hospital, the role of intravenous opioids, namely fentanyl, whose use is inevitable, is understood and proven in many medical procedures.

II. LITERATURE REVIEW

History of Opioids

Opium is a natural chemical found in several types of plants that form the basis of synthetic drugs such as oxycodone, hydrocodone, heroin, fentanyl and morphine.

The first uses of opium date back to ancient Mesopotamia, in the Middle East, dating back to around 3400 BC. At that time, opium was used as a sedative and for sleep and for other psychological problems, but it was also used as a substance of abuse.

Through trade, the cultivation of this opium plant (poppy) spread to other ancient cultures, including some other people's such as the Persians, the Egyptians and the Greeks. From 1333-1324

BC opium abuse was widely popular among the upper classes. In 1806, the German chemist Friedrich Wilhelm Adam Serturner isolated or separated a substance from opium, which he called "morphine", which was associated at that time with the god of dreams called Morpheus.

Morphine quickly became a mainstay of American doctors, they administered it for the treatment of pain, anxiety and breathing problems, and also used it for female ailments. A very important use of morphine is that it was used during the Civil War as a pain reliever. This use of morphine in soldiers during the civil war caused so much addiction that addiction to morphine at that time after the war was known as the "soldier's disease".

In 1853, with the invention of the hypodermic needle, morphine began to be used in minor surgical procedures.

In 1898, by a German chemical company, by synthesizing heroin as a derivative of morphine, heroin began to be used as a cough suppressant. So, in the late 19th century, the US began to crack down on the non-medical use of opium.

2.1. Opioid Functioning

Opioids work in much the same way as the body's natural chemicals called endorphins. Endorphins help: regulate breathing, slow down digestion, encourage social connections, activate the body's reward system during eating, exercise.

Our body releases endorphins during painful and pleasurable experiences. Endorphins bind to opioid receptors found on nerves in the brain, and in this way block the neurological "door" so that chemicals carrying pain or stress signals cannot pass through. So, we can say that the body uses endorphins to reduce the alarm system and give a calm signal. This is how opioids work, they bind to the same nerve receptors, in most cases more effectively than endorphins. Synthetic and semi-synthetic opioids often bind more efficiently to opioid receptors than opiates.

This is why these drugs or medicines can have a greater impact and relieve stronger pain than the body can handle, even though they create a greater sense of euphoria, they are natural runners.

It should be noted that the use of opioids, especially long-term or in high doses, can cause the closure of these receptors to the point of interruption of important body functions, which are breathing and digestion. Then, when opioids suppress these functions too much, it can cause an overdose which results in stopping all functions, the body stops working. (Emily Swaim, 2022)

2.2. Negative effects of opioids

Opioid analgesics are quite useful for the treatment of pain of various etiologies, however, there are negative effects which are possible limitations for their use. Methods to minimize the adverse effects of opioids include dose reduction, symptomatic management, opioid rotation, and changing the route of administration.

The most common adverse side effects are predictable consequences of the pharmacological actions of opioids during therapy. Approximately 50% - 80% of patients in clinical trials experience at least one side effect from opioid therapy, but in daily use the incidence may be higher.

Side effects of opioids expected to occur in most cases include: nausea, vomiting, constipation, dizziness, dry mouth and sedation. (John M. Swegle, 2006)

The occurrence of side effects can often lead to discontinuation of opioid therapy. Most side effects, except constipation and pruritus, improve soon after starting treatment or after a targeted dose increase. While constipation and itching tend to continue throughout the treatment and we may require long-term management. Opioids have multiple effects on respiratory physiology, including decreasing central respiratory drive, respiratory rate, and tidal volume. By their action, they increase airway resistance and decrease upper airway patency.

The consequence of these negative actions can lead to inadequate or ineffective ventilation and obstruction of the upper respiratory tract in susceptible persons. Respiratory depression is a major risk associated with opioid use. It is a concern in the

management of acute pain where patients have not developed tolerance. Persistent pain is more likely to be a potential problem if there has been a large, often unwanted, increase in dosage, or a change in formulation or route of administration.

Opioids can cause irregular breathing pauses and gasping can lead to irregular breathing and significant variability in breathing rate.

III. PURPOSE AND METHODOLOGY OF THE RESEARCH

In the previous part, the material collected from the literature review is described, and this paper continues with the part of the research presented through graphics and tables. The main goal is that from each part of the work we gain knowledge about the group of intravenous opioids and especially about fentanyl.

The statistical research aims to prove to us that the most used intravenous opioid and actually the only opioid used in the intraoperative period is Fentanyl, for this reason in the future all statistics are based on the dosage of Fentanyl in general and spinal anesthesia. All these are presented through graphics and tables, but also divided into the two gender groups.

The research was done at the Vushtrri Regional Hospital. The statistics are collected from the protocols that were provided to me by the medical staff working in the hospital. Data have been collected on the administered dose of Fentanyl, in a large number of patients, in different genders, in general and spinal anesthesia. The documentation provided at the hospital includes the protocol of the general and gynecological surgical rooms, during the period January-March 2021.

IV. RESULTS

4.1. Empirical Presentation Of The Results

All results are presented using tables and graphs.

4.2. Presentation Of The Results For The Month Of January 2021

Statistics of surgical rooms. This month, 104 patients who were administered the opioid **FENTANIL** are included in the research.

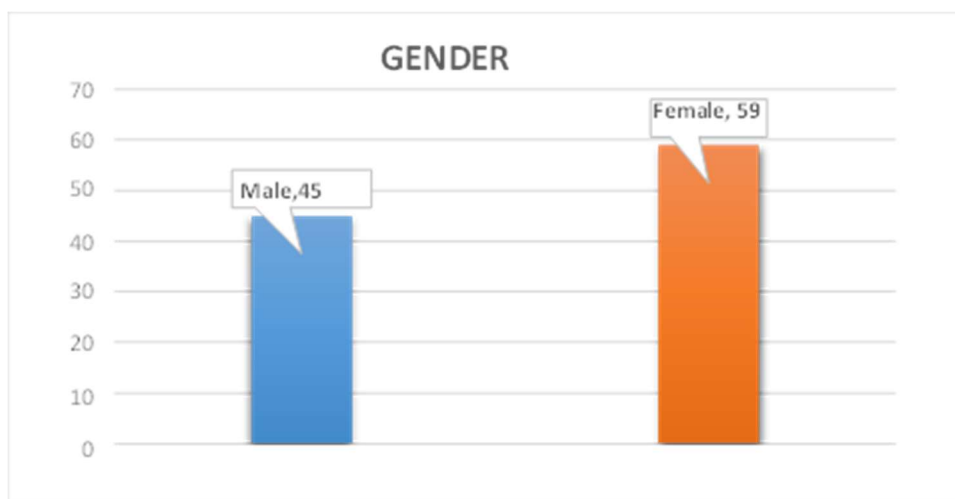


Figure 1. Presentation of participating patients by gender, month of January.

According to the figure above, it can be seen that in January, 45 men and 59 women underwent surgical interventions in the general surgery rooms.

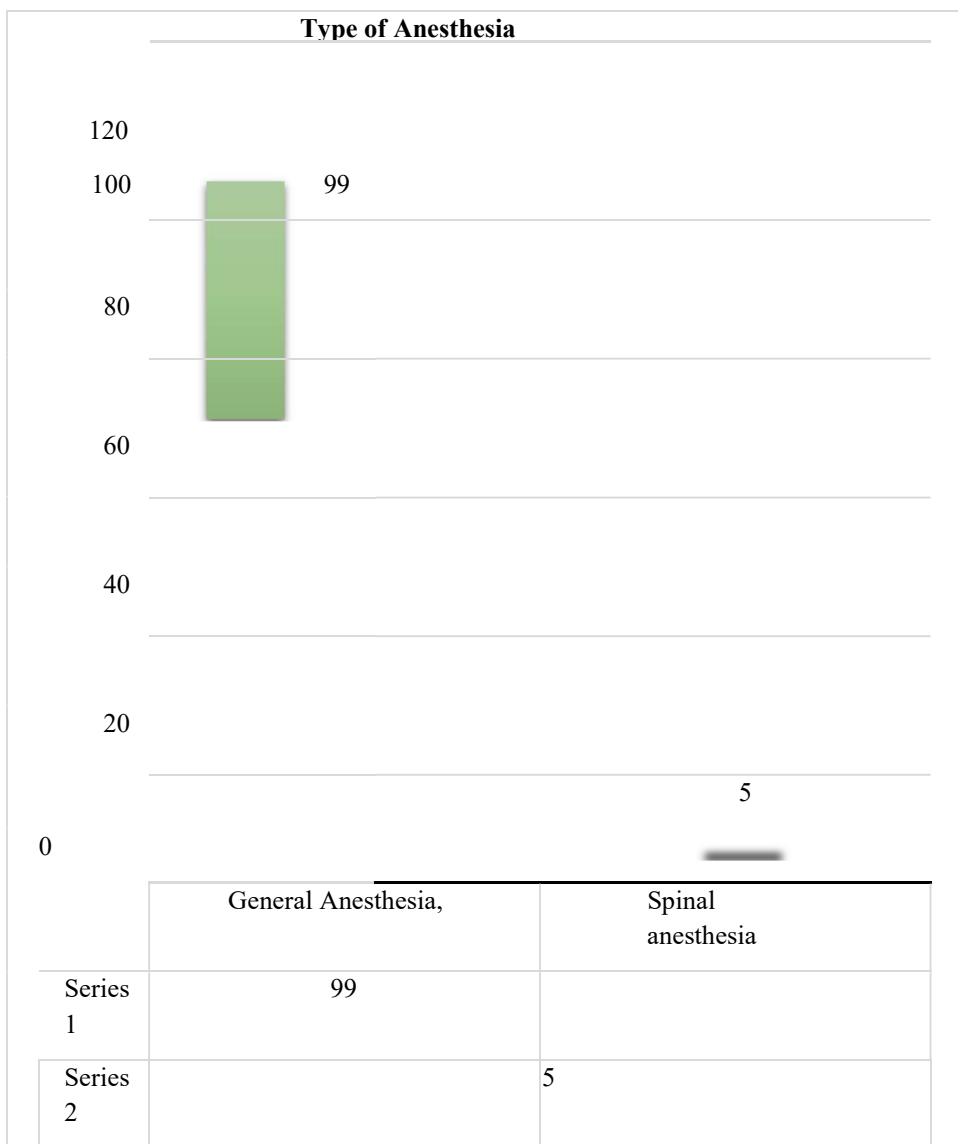


Figure 2. Number of patients in General and Spinal Anesthesia, January

This figure shows the number of patients, where out of 104 patients, 99 patients underwent general anesthesia and 5 patients underwent spinal anesthesia.

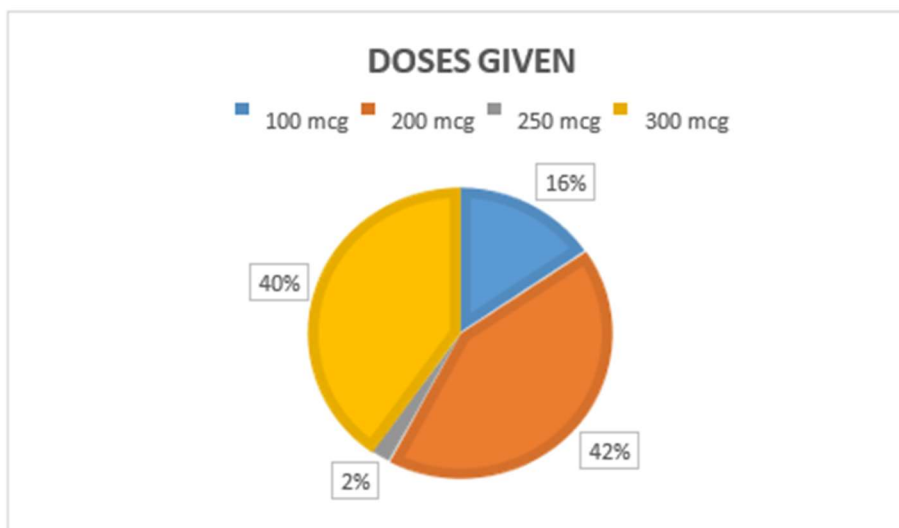


Figure 3. Fentanyl doses administered in General Anesthesia, January.

Based on the obtained results, we note that in January, from the patients with general anesthesia, 42% of the patients, the administered dose of Fentanyl was 200 mcg, 40% of the patients were administered 300 mcg of Fentanyl, 16% of the patients are 100 mcg Fentanyl and only 2% are with 250 mcg Fentanyl.

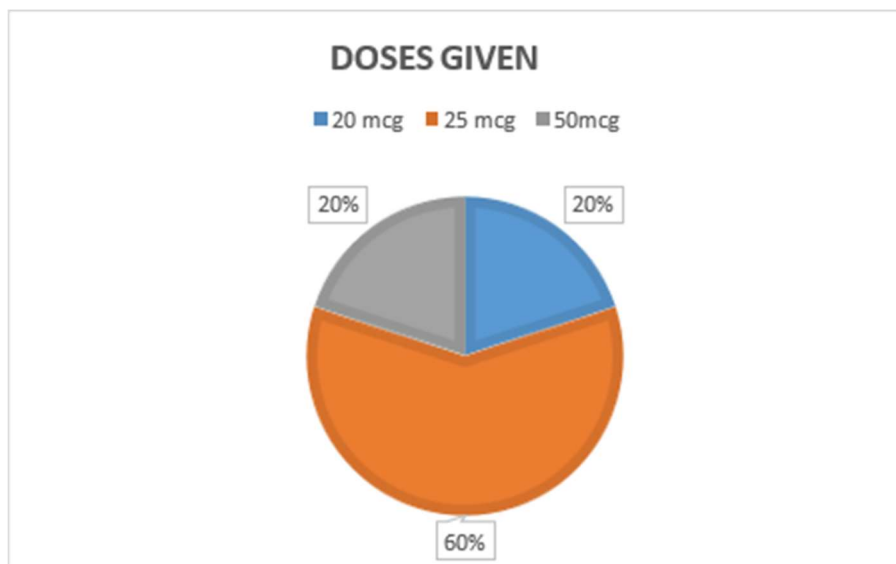


Figure 4. Fentanyl doses were administered in Spinal Anesthesia, the month of January.

Based on the results in the figure, we note that the most frequently administered dose is 25 mcg Fentanyl, in 60% of patients.

Gynecological surgical ward statistics.

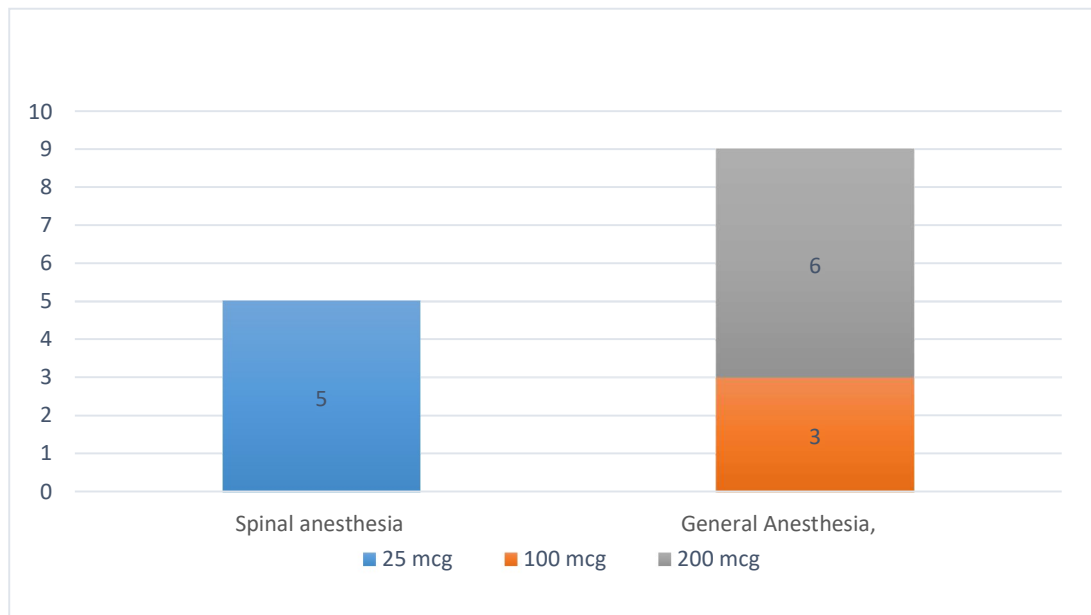


Figure 5. Fentanyl doses administered in Spinal and General Anesthesia, January.

In the corresponding figure, we notice that there were 14 patients in the gynecological ward, where 5 of them were given spinal anesthesia, with small doses of Fentanyl 25 mcg. While general anesthesia was applied to 9 patients, where 6 of the patients were administered a maximum dose of 200 mcg of Fentanyl and 3 patients, a dose of 100 mcg Fentanyl.

4.3. Presentation Of The Results For The Month Of February 2021

Statistics of surgical rooms. In February, a total of 117 patients were identified, who were administered the opioid Fentanyl.

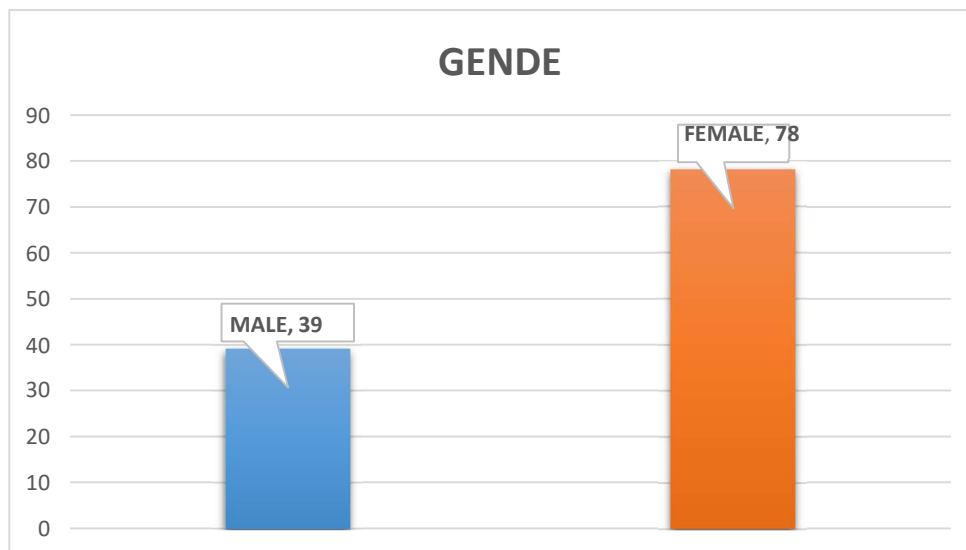


Figure 6. Presentation of participating patients by gender, February

In this figure, it can be seen that in February, 117 patients had a specific surgical intervention in the surgery rooms, of which 39 were men and 78 were women

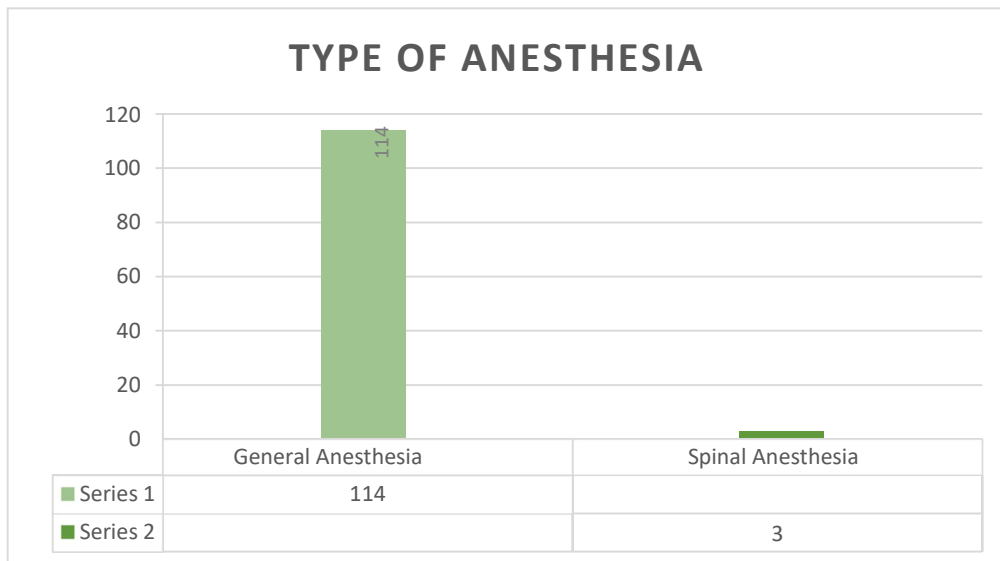


Figure 8. The number of patients in General and Spinal Anesthesia, February.

In the figure above, the number of patients where out of a total of 117 patients, 114 of them were given general anesthesia and 3 patients were given spinal anesthesia.

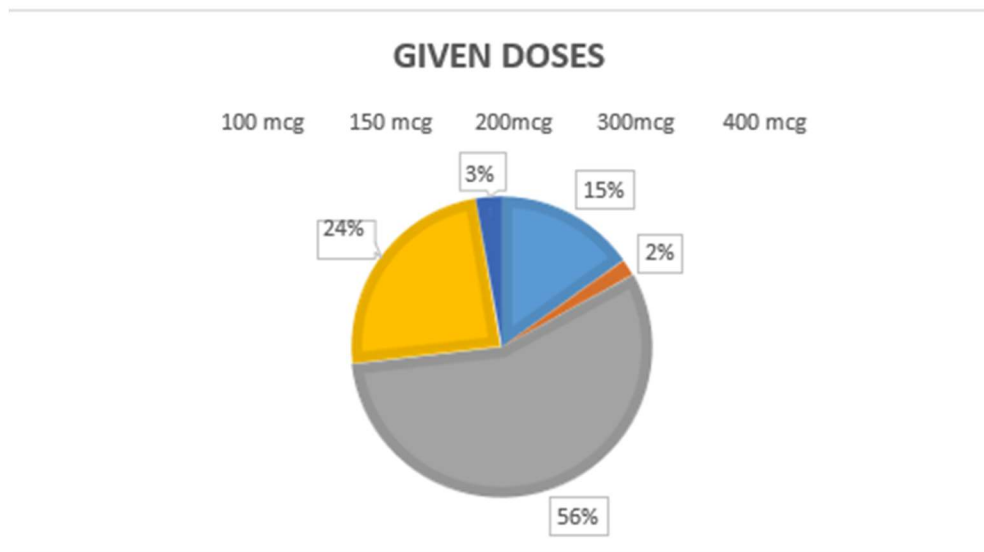


Figure 8. Doses of Fentanyl administered in General Anesthesia, February

Based on the results found in the figure, we understand which doses were mainly administered in the month of February, we also see that 56% of patients were administered the maximum dose of 200 mcg of Fentanyl, 24% of patients were administered 300 mcg of Fentanyl, 15 % of all patients were administered 400 mcg and 5% of patients were administered 100 mcg – 150 mcg of Fentanyl.



Figure 9. Fentanyl dose administered in Spinal Anesthesia, February.

From the displayed result, we understand that during the month of February, all patients were administered a dose of 25 mcg of Fentanyl.

Statistics from the gynecological surgical room

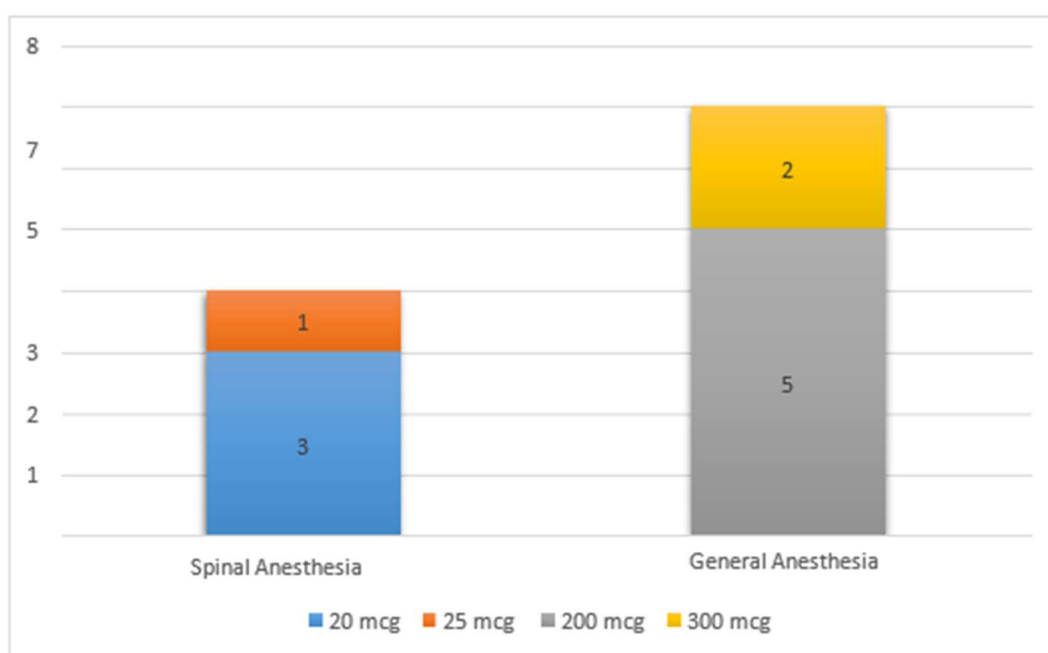


Figure 10. Fentanyl doses administered in Spinal and General Anesthesia, February.

From the results of the table above, we understand that, in the month of February, 11 patients were identified in the surgery / gynecology protocols, of which 4 patients were given spinal anesthesia and 7 patients were given general anesthesia.

We also note that out of 4 patients with spinal anesthesia, 3 of them were administered 20 mcg of Fentanyl and 1 patient was administered 25 mcg of Fentanyl. Whereas, out of 7 patients with general anesthesia, 5 of them received the dose of 200 mcg of Fentanyl and 2 of them received the dose of 300 mcg of Fentanyl.

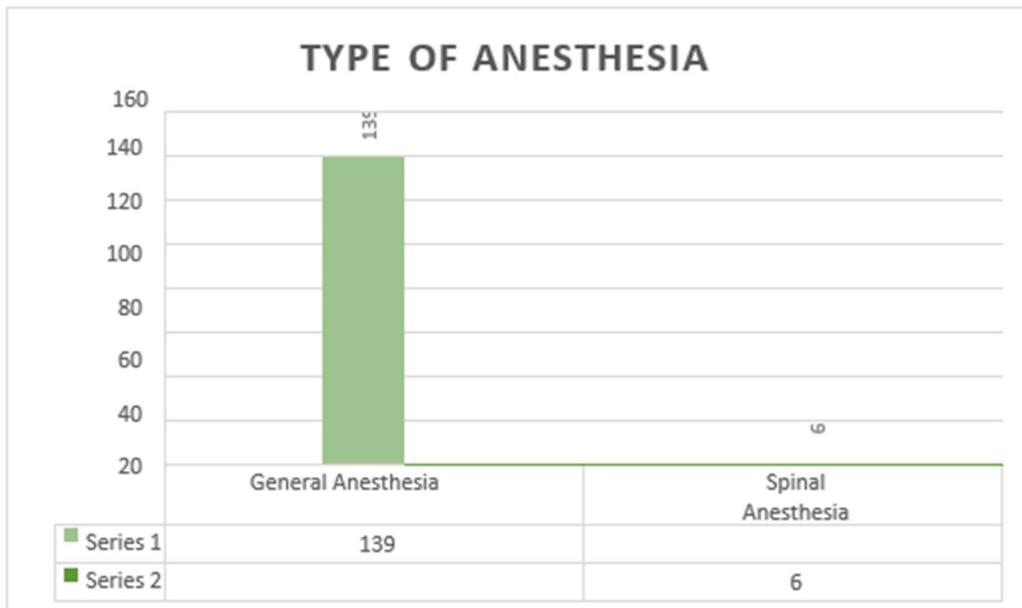


Figure 12. Number of patients in General and Spinal Anesthesia, March.

Statistics show us that out of a total of 145 patients, 139 patients were given general anesthesia, while 6 patients were given spinal anesthesia.

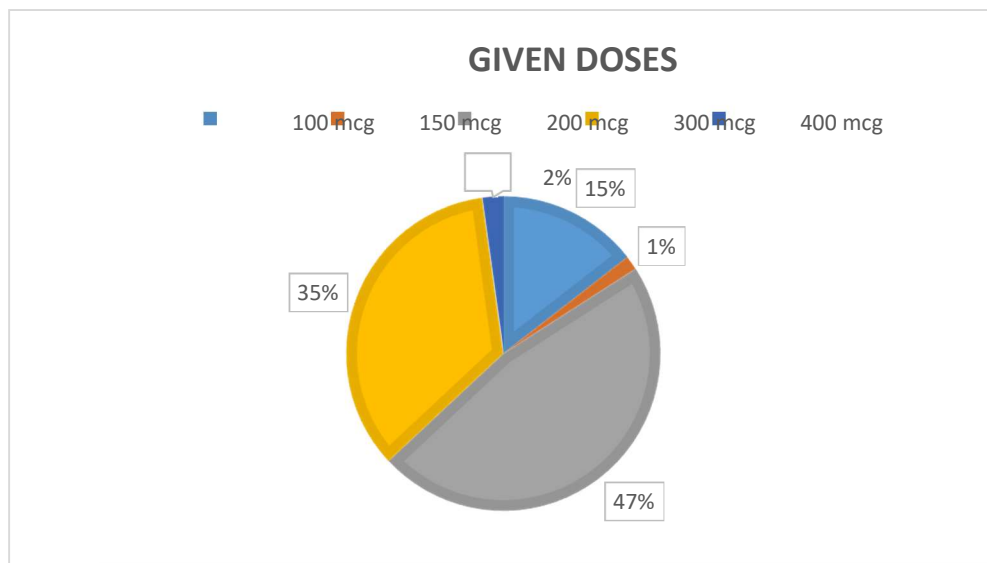


Figure 13. Fentanyl doses administered in General Anesthesia, month of March.

This graph presents the results of doses administered to patients during the month of March, we note that 47% of patients were administered a dose of 200 mcg Fentanyl, 35% of patients were administered a dose of 300 mcg Fentanyl, and the remaining 15% of patients 100 mcg Fentanyl dose was administered, also 3% of patients received 150 mcg and 400 mcg Fentanyl dose.

V. CONCLUSION

From this part of the research, which was done by analyzing the protocols in the Regional Hospital of Vushtrri and by reviewing the literature, we reach the following conclusions:

1. The only opioid used was Fentanyl, because of its action.

2. The form of administration of Fentanyl was intravenous.
3. The use of opioids, namely Fentanyl, in the intraoperative period is almost inevitable.
4. Fentanyl is used in general anesthesia, in most cases also in spinal anesthesia.
5. Improper dosage of Fentail can cause unwanted effects, but during the research it was not encountered in any specific case.
6. In the period January-March 2021, during the month of June, the most patients were identified, to whom different, necessary doses of Fentanyl were administered.
7. In the identified patients, 100 mcg of Fentanyl were administered during the Induction period.
8. Almost every patient was administered 100 mcg of Trodon (Tramadol) in the postoperative period.
9. Fentanyl in Spinal anesthesia has been administered in combination with Bupivacaine.

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