

Prevalence Of General Anesthetics Use In The Clinic Of Surgery At The University Clinical Center Of Kosovo

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Résumé

Introduction - Anesthesia is a state of controlled, temporary loss of sensation or consciousness that is induced for various medical purposes. It refers to the use of medications (called anesthetics) so that we do not feel pain during procedures or surgery.

The aim - of this study is the use of anesthetics in general surgery in UCCK, the most used types, their role and importance, the way of administration and their dosage during the anesthesia period.

Methodology - This paper is a research in which a descriptive method was used, where, in addition to a deep review of the literature, data were obtained from the protocols of patients from general surgery at the UCCK, during the period January - June 2022.

Results - The results include all general surgery patients in that specific time period. The results achieved have resulted in detailed data about anesthesia, anesthetics, the way of administration, their use. We note that the prevalence of general anesthetics is dominant in each month and the spinal one is the least used. The obtained results are presented with graphs and commented on their content.

Conclusions - From the results obtained from this study, we can conclude that the use of anesthetics is very high and the number of cases is very high. General and neuroaxillary (spinal) anesthesia are the most used, then intravenous anesthesia, and finally the laryngeal mask. Most of the cases in this surgery are performed by means of general and spinal anesthesia.

Mots clés – Anesthesia, Anesthetics, Hypnotics, Analgesics, Muscle Relaxant, Uses, Dosage, General Anesthetics.

I. INTRODUCTION

Anesthesia is a state of reversible calmness and physiological stability of the patient before, during and after surgical interventions. Anesthesiology practices date back to ancient times. In ancient civilizations, opium, cocaine leaves, mandrake roots or alcohol were used very often during surgical interventions. The ancient Egyptians used one of the opium-Hyoscyamus combinations, which is similar to the combination used today morphine-scopolamine, finds use in premedication. The first general anesthetics were taken by inhalation: nitrous oxide, ether and chloroform. William Morton was the one who performed the first general anesthesia with ether in Boston in 1846.

General anesthesia is reversible descending depression of the CNS, which first causes loss of consciousness, then insensitivity to pain (analgesia), not remembering the surgical procedure (amnesia), and muscle relaxation. General anesthesia does not begin according to the anatomical order of the organs of the human body. First it starts from the cerebral cortex or the youngest phylogenetic part of the brain, then the cerebellum and basal ganglia, and then the spinal cord (spinal medulla). So, the medulla oblongata (in which the vital centers are located) is bypassed, which is included at the very end by anesthesia. Exactly this "overcoming" of the vital centers in the medulla oblongata is of great importance for general anesthesia.

The triad of AP is: hypnosis, analgesia and muscle relaxation. It is characterized by: loss of feelings-pain, loss of consciousness, amnesia, immobilization, loss of somatic and autonomic reflexes and muscle relaxation.

PHASES OF ANESTHESIA: Induction (entry into anesthesia) is done by giving i.v. and inhaler anesthetics. For children, it is preferable to give inhaled anesthetics because of the difficulties and possibly the greatest comfort for placing the venous line. After induction with anesthetics, endotracheal intubation is done.

Maintenance is done by administering oxygen (O₂), nitrous oxide (N₂O), IV or inhaler anesthetic, muscle relaxant and analgesic.

Awakening occurs with the discontinuation of anesthetics, extubation and monitoring of the patient. (Nehat Baftiu, 2021).

II. DEPARTMENT OF ANESTHESIA

General anesthetics render patients unconscious during the procedure, while local and regional anesthetics simply numb part of the body and allow patients to remain awake.

Depending on the type of pain relief needed, doctors give anesthetics by injection, inhalation, topical lotion, spray, eye drops, or skin patches.

General anesthesia affects the entire body, rendering patients unconscious and unable to move. Surgeons use it when operating on internal organs and for other invasive or time-consuming procedures, such as back surgery. Without general anesthesia, many major, life-saving procedures, including open-heart surgery, brain surgery, and organ transplants, would not be possible. (National Institute of General Medical Sciences, 2022).

General anesthesia works by interrupting nerve signals in your brain and body. It prevents your brain from processing and feeling the pain and remembering what happened during the surgery. (Tyler Wheeler, 2022).

Regional anesthesia consists of infiltrating a peripheral nerve with an anesthetic agent and blocking transmission to avoid or relieve pain. It differs from general anesthesia as it does not affect the patient's level of consciousness to relieve pain. It has several advantages over general anesthesia, such as avoidance of airway manipulation, reduced doses, systemic drug side effects, faster recovery time, and significantly lower levels of postoperative pain. (Li J, Lam D, King H, Credaroli E, Harmon E, Vadivelu N, 2019).

Local anesthesia provides reversible nerve blockade, leading to loss of pain sensation. Superficial application and direct infiltration of anesthesia is done in the area or site of the cut. Regional blocks are designed to anesthetize larger areas through a nerve or field block. (Michelle DiBaise, 2007).

III. OBJECTIVE AND METHODOLOGY OF THE RESEARCH

The purpose of this research is to present the amount of anesthetics used and the way they are administered, in general surgery at UCKK. Also, this research presents the number of patients who were administered anesthetics in the period January-June 2022.

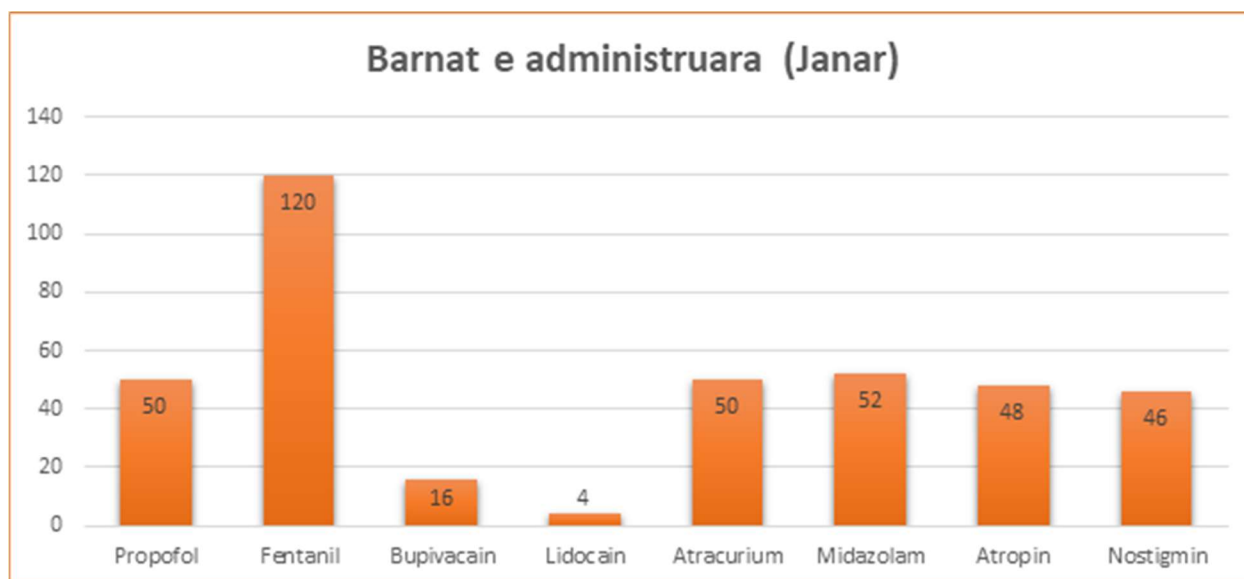
The research model is descriptive and its purpose is to describe the amount of anesthetic administration in the aforementioned period. The research was carried out in the abdominal surgery clinic at the University Clinical Center of Kosovo.

For the collection of data, the medical protocols of the relevant clinic were used, during the period January-June 2022. Data collection was done with the permission of the administration of the UCKK.

IV. EMPIRICAL PRESENTATION OF THE RESULTS

In this part of the research, the results are presented in tabular and graphic form.

PRESENTATION OF RESULTS FOR THE MONTH OF JANUARY



Graph 1. Graphic presentation of the amount of anesthetics used during the month of January

In the graph above, we notice that in the general clinic at UCKK during the month of January 2022 these anesthetics were used more and a total of 74 cases were reported. From the class of hypnotics, Propofol was used every time, Fentanyl was used as a strong analgesic in most cases. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used more, and Lidocaine was used only in 4 cases. From the class of benzodiazepines, Midazolam (Flormidal) is used as a short-acting benzodiazepine. Drugs for decurarization1: Atropine and Neostigmine.



Graph 1.1 Graphic presentation of the type of anesthesia applied during the month of January

The graph above shows the type of anesthesia applied for the month of January 2022 and it seems that general anesthesia is the most recommended for surgical interventions of general surgery at UCKK, continuing with the spinal one.

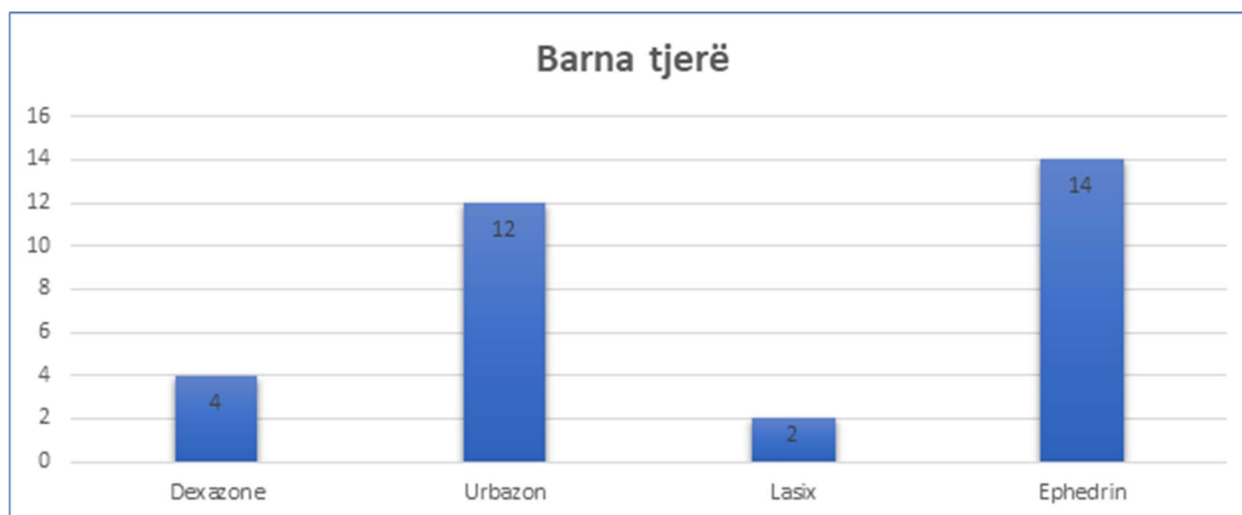


Chart 1.2 Graphic presentation of additional therapies during the anesthesia period during the month of January

The graph above shows the additional drugs administered during the anesthesia period in general surgery in January 2022 and we note that Ephedrine and Urbazon are among the most used. Ephedrine has been used to manage and treat hypotension. In two cases, Lasix was also used as a diuretic.

PRESENTATION OF THE RESULTS FOR THE MONTH OF FEBRUARY

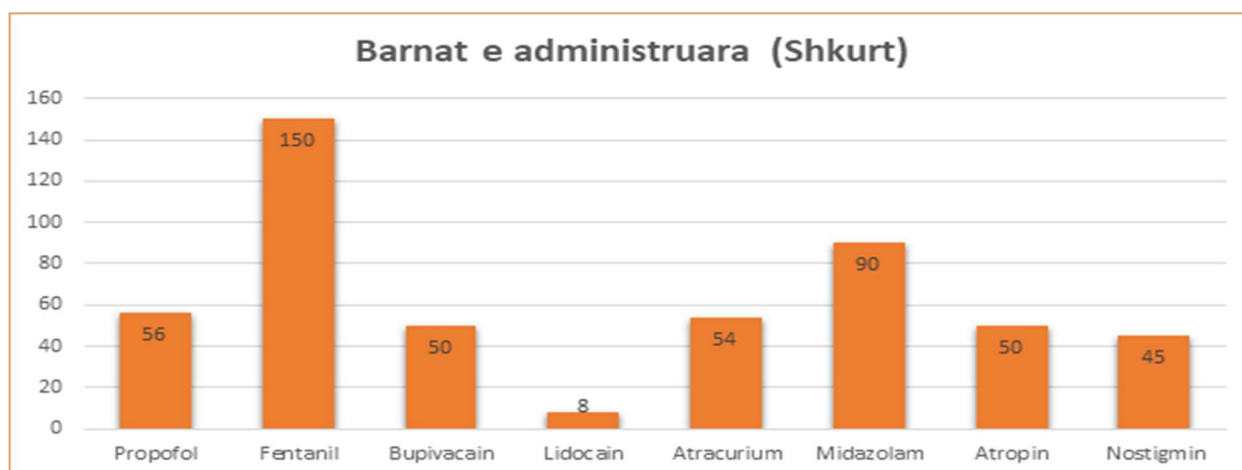


Chart 2. Graphic presentation of the amount of anesthetics used during the month of February

In the presentation of the results in the graph above, we note that in general surgery at UCCK during the month of February 2022, these anesthetics were used more and a total of 106 cases were reported. From the class of hypnotics, Propofol was used every time, Fentanyl was used as a strong analgesic in every case. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used more, and Lidocaine was used only in 8 cases. From the class of benzodiazepines, Midazolam (Flormidal) is used as a short-acting benzodiazepine. Drugs for decurarization: Atropine and Neostigmine



Graph 2.1 Graphic presentation of the type of anesthesia applied during the month of February

The graph above shows the type of anesthesia for the month of February 2022 and it seems that spinal anesthesia is the most recommended for interventions in general surgery with 47%, general anesthesia with 38%, while intravenous anesthesia was not used at all.

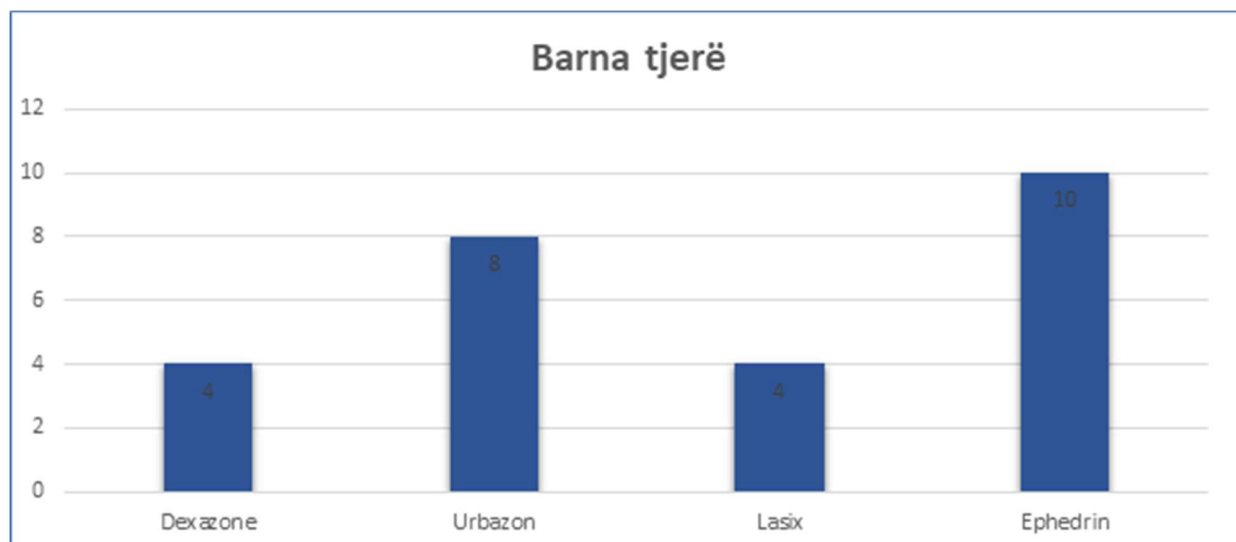
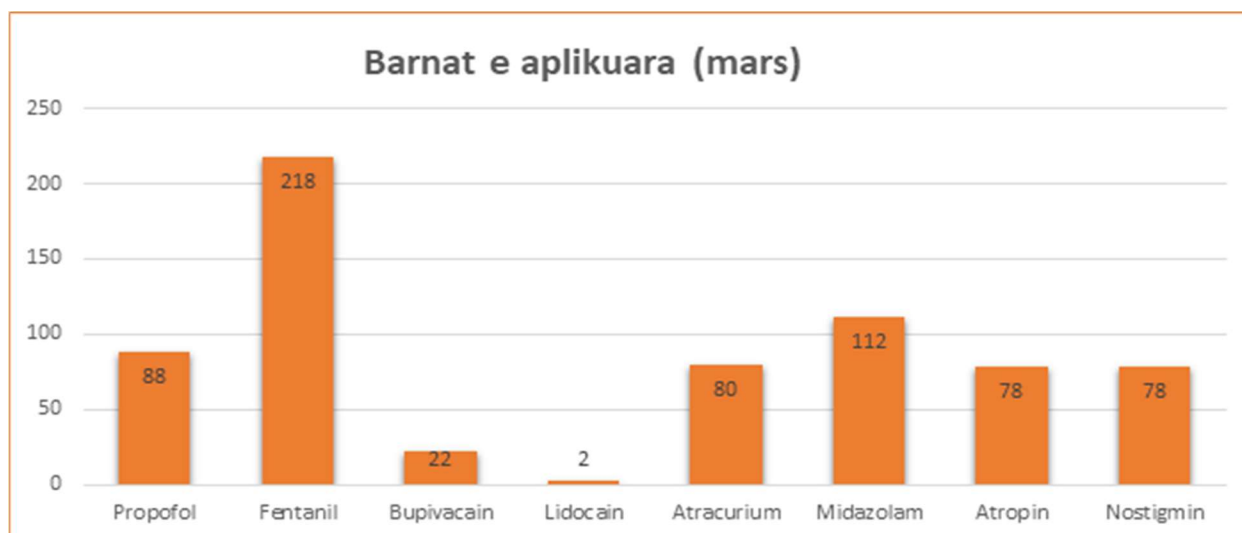


Chart 2.2 Graphic presentation of additional therapies during the anesthesia period during the month of February

The graph above shows the additional drugs administered during the anesthesia period in general surgery in February 2022 and we note that Ephedrine and Urbazon are among the most used.

PRESENTATION OF THE RESULTS FOR THE MONTH OF MARCH



Graph 3. Graphic presentation of the amount of anesthetics used during the month of March

When presenting the results in the graph above, we note that in general surgery at UCKK during the month of March 2022, more of these anesthetics were used and a total of 112 cases were reported. Propofol was used every time as a hypnotic, and Fentanyl was used as an analgesic in every case. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used more, and Lidocaine was used only in 2 cases. From the class of benzodiazepines, Midazolam (Flormidal) is used as a short-acting benzodiazepine. In general anesthesia, decurarization drugs are used: Atropine and Neostigmine. The most used drug this month is Fentanyl, which was used in 218 cases.



Graph 3.1 Graphic representation of the type of anesthesia applied during the month of March

The graph above shows the type of anesthesia for the month of March 2022, and it seems that general and spinal anesthesia are the most recommended for interventions in general surgery at UCKK, while intravenous is the least used by 7%. Anesthesia with laryngeal mask 9%.

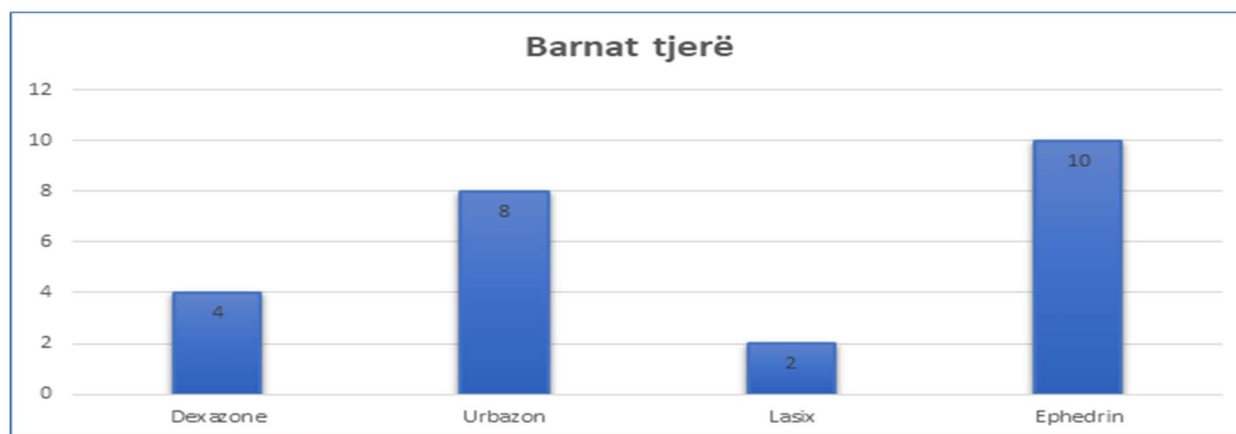


Chart 3.2 Graphic presentation of additional therapies during the anesthesia period during the month of March.

The graph above shows the additional drugs administered during the anesthesia period in general surgery in March 2022 and we note that Ephedrine and Urbazon are among the most used.

PRESENTATION OF THE RESULTS FOR THE MONTH OF APRIL

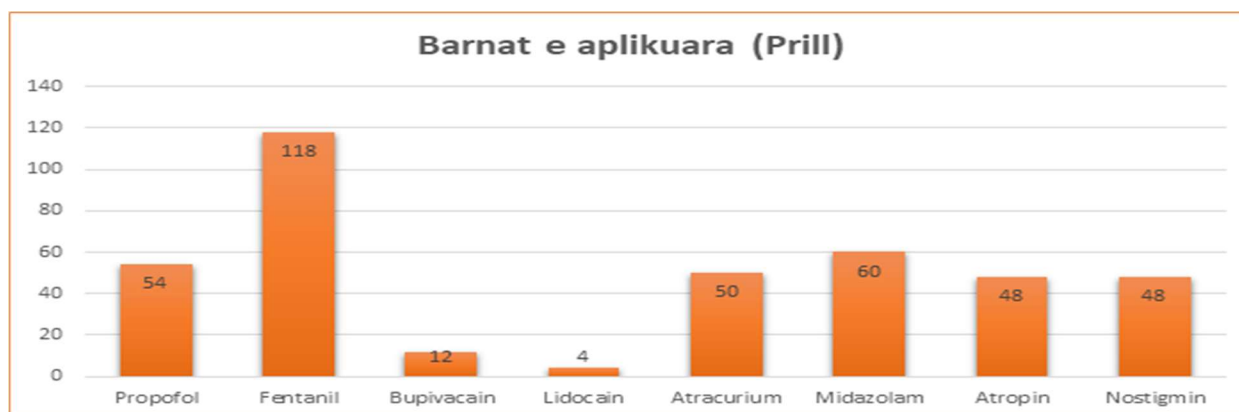


Chart 4. Graphic presentation of the amount of anesthetics used during the month of April.

In the presentation of the results in the graph above, we note that in general surgery at KKUK during the month of April 2022, these anesthetics were used more and a total of 68 cases were reported. From the class of hypnotics, Propofol was used each time, Fentanyl was used as a strong analgesic. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used more, and Lidocaine was used only in 4 cases. From the class of benzodiazepines, Midazolam (Flormidal) is used as a short-acting benzodiazepine. Drugs for decurarization: Atropine and Neostigmine.



Graph 4.1 Graphic presentation of the type of anesthesia applied during the month of April.

The graph above shows the type of anesthesia for the month of April 2022 and as can be seen, general anesthesia is the most recommended with 73% and spinal anesthesia with 21% for interventions in general surgery at UCK. Laryngeal mask anesthesia was used in 6% of cases, while intravenous anesthesia was not used at all.

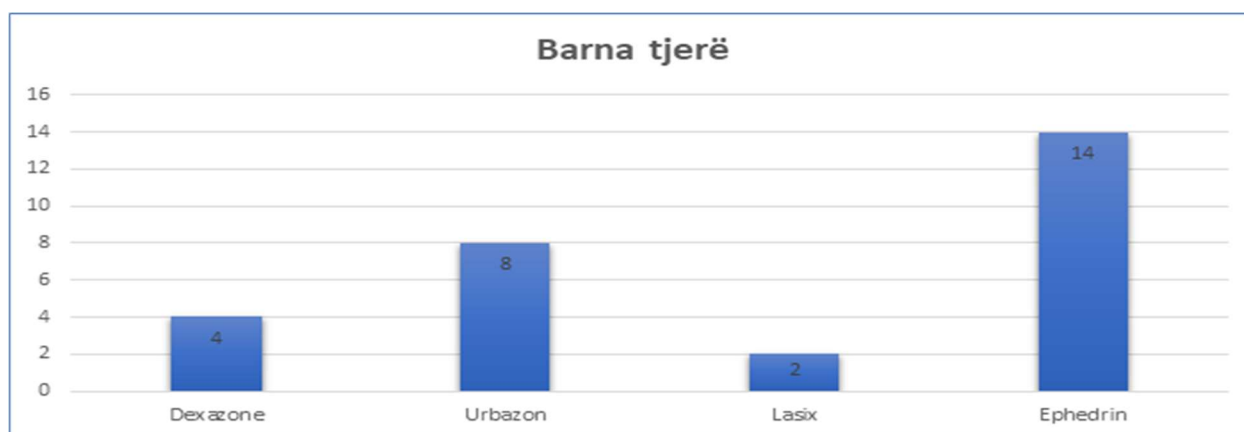
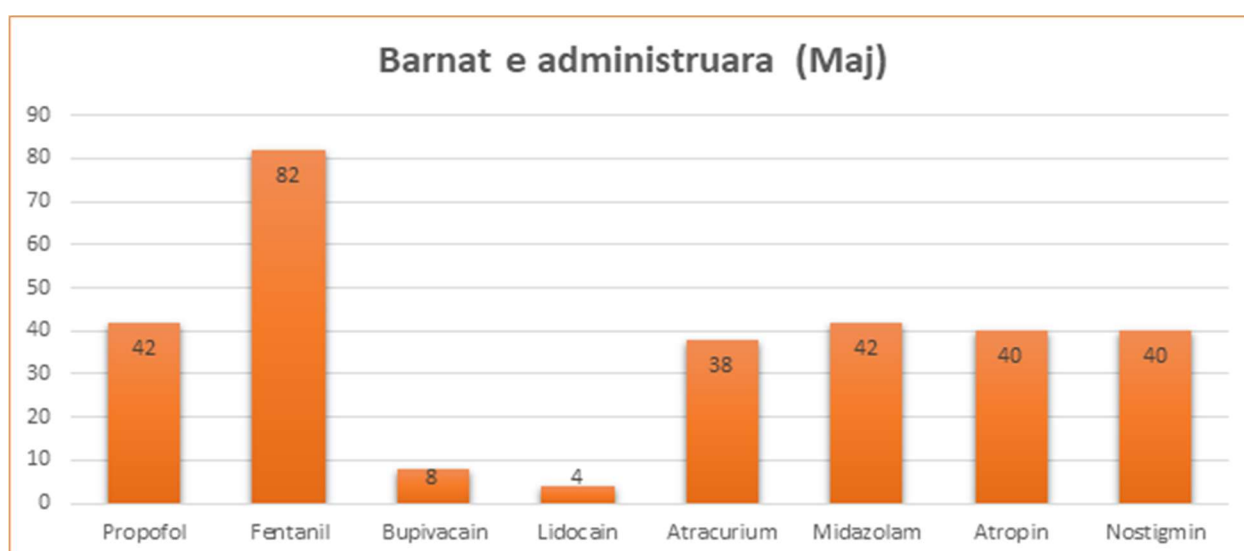


Chart 4.2 Graphic presentation of additional therapies during the anesthesia period during the month of April.

The graph above shows the additional drugs administered during the anesthesia period in general surgery in the month of April 2022 and we note that Ephedrine and Urbazon are among the most used. Dexamethasone was used in 4 cases, Lasix in 2 cases.

PRESENTATION OF THE RESULTS FOR THE MONTH OF MAY



Graph 5. Graphic presentation of the amount of anesthetics used during the month of May.

In the presentation of the results in the graph above, we note that in general surgery at UCK during the month of May 2022, these anesthetics were used more and a total of 52 cases were reported. From the class of hypnotics, Propofol was used each time, Fentanyl was used as a strong analgesic. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used in 8 cases, and Lidocaine was used in 4 cases. From the class of benzodiazepines, Midazolam (Flormidal) is used as a short-acting benzodiazepine. Drugs for decurarization: Atropine and Neostigmine.

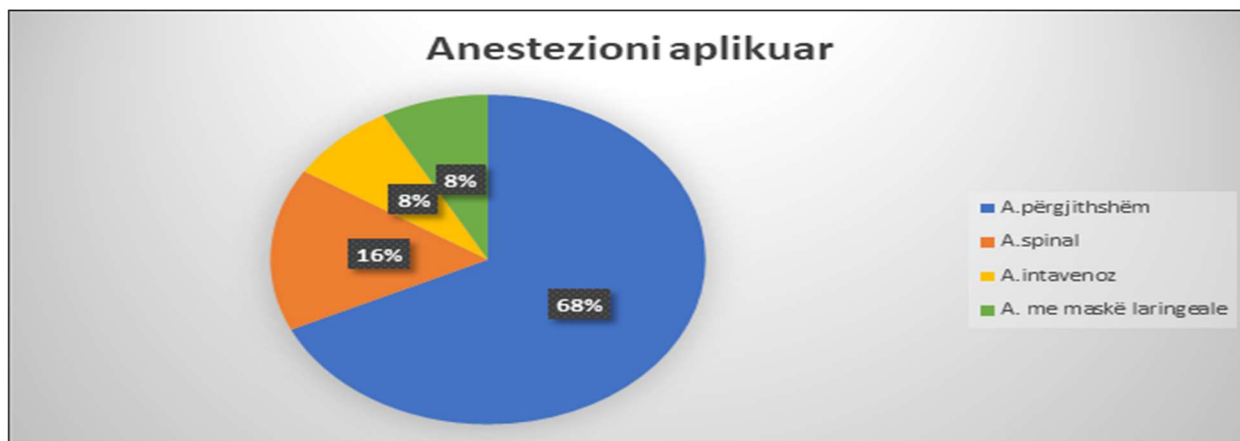


Chart 5.1 Graphic presentation of the type of anesthesia applied during the month of May.

The graph above shows the type of anesthesia for the month of May 2022 and as can be seen, general anesthesia is the most recommended with 68% and spinal anesthesia with 16% for interventions in general surgery at UCCCK. Anesthesia with laryngeal mask and intravenous anesthesia, unlike other methods, were used in the same amount.

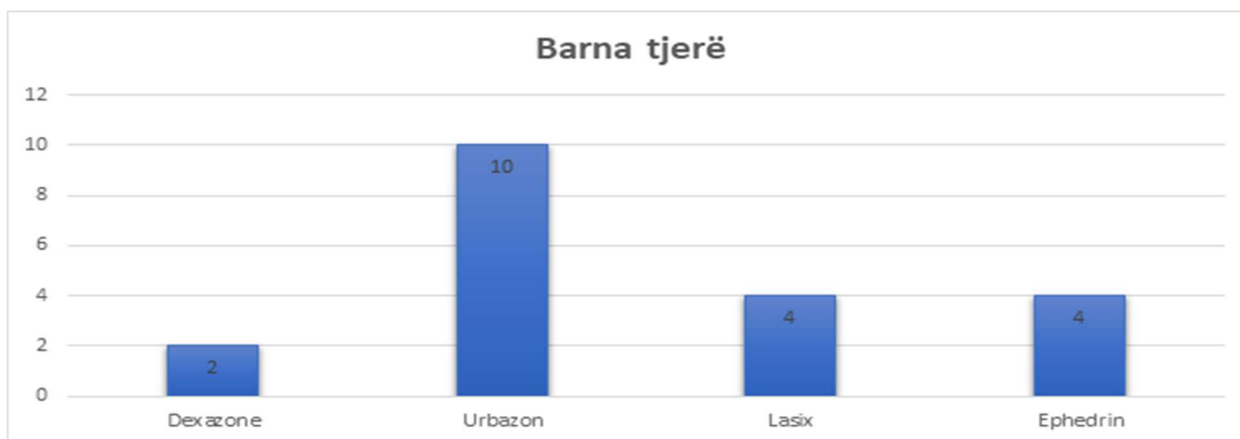


Chart 5.2 Graphic presentation of additional therapies during the anesthesia period during the month of May.

The graph above shows the additional drugs administered during the anesthesia period in general surgery in May 2022 and we note that Urbazon is among the most used, with 10 cases. Lasix and Ephedrin in 4 cases each and Dexazon in 2 cases.

PRESENTATION OF THE RESULTS FOR THE MONTH OF JUNE

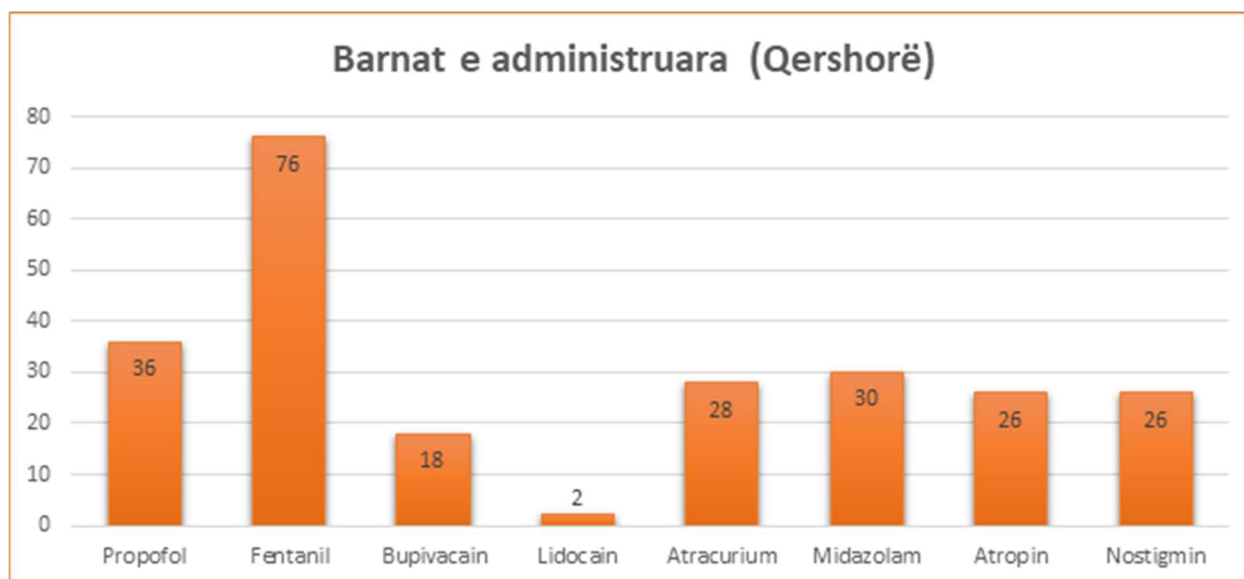


Chart 6. Graphic presentation of the amount of anesthetics used during the month of June.

In the presentation of the results in the graph above, we note that in the general surgery in the UCKK during the month of June, these anesthetics were used more and there were a total of 58 cases. From the class of hypnotics, Propofol was used each time, Fentanyl was used as a strong analgesic. Atracurium was used as a muscle relaxant in all cases. Of the local anesthetics, Bupivacaine was used more, and Lidocaine was used only in 2 cases. Midazolam is used from the benzodiazepine class. Drugs for decurarization: Atropine and Neostigmine.

Chart 6.1 Graphic presentation of the type of anesthesia applied during the month of June.

The graph above shows the type of anesthesia for the month of June and we note that once again general and spinal anesthesia are the most recommended for surgical interventions in general surgery at UCKK, while that with a laryngeal mask is less used by 3%.

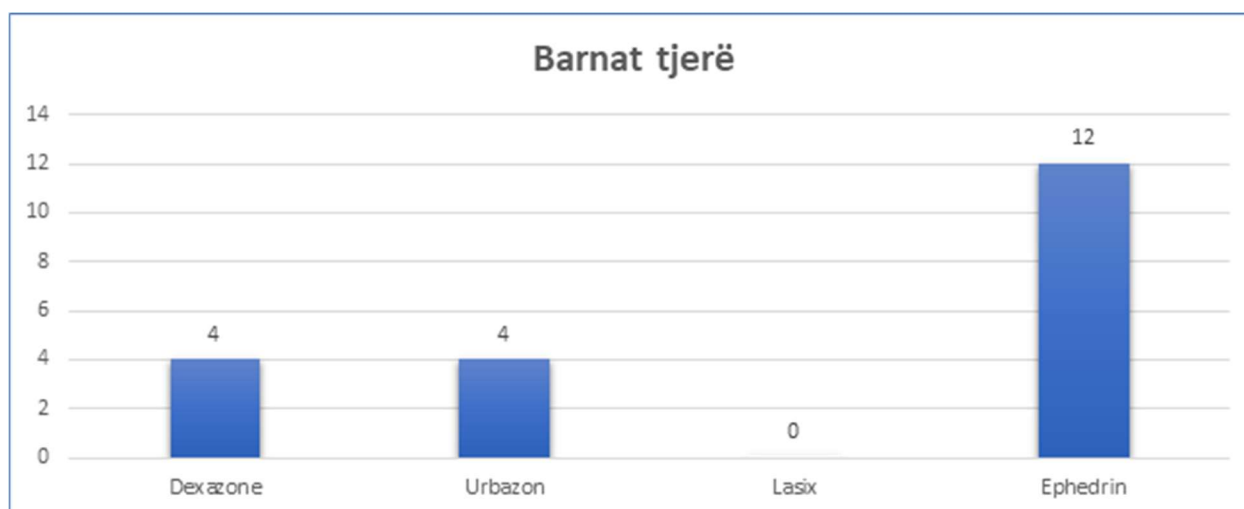


Chart 6.2 Graphic presentation of additional therapies during the anesthesia period during the month of June.

The graph above shows the additional drugs administered during the anesthesia period in general surgery in the month of May 2022 and we note that Ephedrine is among the most used with 12 cases. This month we have no use of Lasix.

V. CONCLUSIONS AND RECOMMENDATIONS

From the results achieved by this study, we can conclude that the use of anesthetics is very high and the number of cases is very high. General and neuroaxillary (spinal) anesthesia are the most used in general surgery, then intravenous anesthesia, and finally laryngeal mask anesthesia. Most of the cases in this surgery are performed by means of general and spinal anesthesia. The most commonly used hypnotic turns out to be propofol. The most commonly used analgesic was fentanyl, while the most commonly mentioned muscle relaxant was aracurium. In most interventions performed under general anesthesia, atropine and nostigmine were used as decurarization drugs. In operations that subjected you to spinal anesthesia, the most commonly used local anesthetic was bupivacaine and, in rarer cases, lidocaine.

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