

TO

**THE CHAIRMAN OF THE SCIENTIFIC JURY  
DETERMINED BY ORDER No. R-109-207/17.07.2024  
TO THE RECTOR OF MU - VARNA**

**OPINION**

**by Assoc. Dr. Lubomir Stefanov Bakalivanov d.m.  
Head of Cardiovascular Anesthesia and Intensive Care  
National Heart Hospital - EAD  
Sofia**

By Order No. P-109-207/17.07.2024, I have been appointed as a member of a scientific jury under the procedure for holding a competition for the acquisition of the educational and scientific degree "Doctor" in the field of higher education 7. Health care and sports, professional direction 7.1 . Medicine, scientific specialty "Anesthesiology and intensive care" (03.01.38).

I duly received the necessary documents and materials in accordance with the regulations for the development of the academic staff of the MU-c. Varna.

Candidate in the competition: Dr. Zdravka Ivanova Ivanova.

Topic of the dissertation: "Controlled arterial hypotension in shoulder surgery".

Research supervisor: Prof. Vilian Hristov Platikanov, Ph.D.

**Biographical data of the candidate:**

Dr. Zdravka Ivanova Ivanova was born on August 27, 1991.

His professional path began at UMBAL "St. Marina" JSC, where in the period 12.12.2016 - 13.05.2021 works as a resident in anesthesiology and intensive care.

After successfully acquiring a specialty, he continues his professional career as a specialist in "Anesthesiology and intensive care" at the UMBAL "St. Marina" city of Varna.

He speaks English and Spanish.

**Relevance of the topic of the dissertation:**

Targeted lowering of arterial pressure in order to reduce intraoperative blood loss and provide a more comfortable field for surgical work is a technique studied and developed over the years. It includes two components: pharmacological /systemic/ arterial pressure manipulation and specific anesthetic techniques known to reduce bleeding in the operative field due to the targeted effect on the vascular system. The "optimal" technique is a combination of rapid



reversible reduction in arterial pressure and minimal effector outcome on organ perfusion and global negative effect on body systems. There is currently no universal method and/or technique that achieves everything needed together.

In this dissertation, the theoretical-practical problem of the application of an interscalenus plexus block, combined with general anesthesia, as a method of achieving controlled hypotension during surgical interventions on the shoulder joint and the proximal part of the humerus is examined in detail.

### **Structure of the dissertation:**

The dissertation of Dr. Zdravka Ivanova is 113 pages long, illustrated with 36 figures and 13 tables. The book collection contains 186 titles, of which 6 are in Cyrillic and the remaining 180 are in Latin.

The introduction of the dissertation is comprehensive, clear and corresponds to the essence of the chosen topic. It is clear from it that Dr. Ivanova has thoroughly studied the problem of controlled arterial hypotension, all methods, means and techniques for achieving it and, as well as the positive, negative sides and side effects of the procedure. The presented literature review is in a volume of 36 pages. The chronological analysis of the exhibition, tracking of the anatomical and physiological features during the implementation of controlled art techniques makes a very good impression. hypotension. The subject of the indications and contraindications of the technique, as well as the necessary monitoring during the procedure, in order to ensure security and safety, is also touched upon in detail. The literature review ends with 11 conclusions drawn by Dr. Ivanova and her team, which prove the relevance of the problem, resp. of the dissertation.

The aim of the study was: *To evaluate the effectiveness of ultrasound-guided interscalenus plexus block in achieving controlled hypotension in patients undergoing arthroscopic and open shoulder surgery under general anesthesia.* It is precise, clear and specifically worded. To achieve this goal, Dr. Ivanova formulated 6 tasks, the last one of particular importance to me, since its implementation implies a significant practical contribution and the development of a model for work with a repetitive nature /protocol/. Task 4 is also interesting and relevant, in relation to the frequency of arterial hypertension and its social significance.

From the "Materials and methods" section, it is clear that the study has two arms - retrospective and prospective, monocentric and non-randomized, conducted at KAIL at UMHAT "Sveta Marina", Varna. The subject is patients treated at the Clinic for Orthopedics and Traumatology, who underwent planned or emergency surgical intervention in the area of the shoulder joint and proximal humerus.

The study was approved by decision of the Research Ethics Committee (KENI) No. 107/28.10.2021 at the Medical University "Prof. Dr. Paraskev Stoyanov", city of Varna.

A total of 162 patients were included in the study, divided into two groups: experimental (N = 81) and control (N = 81).

The experimental group is retrospective (n=81) and included patients who passed through the facility for the period 2020-2023, who met the criteria for inclusion in the study and who received a peripheral nerve block, PPI, in addition to the usual protocol for controlled arterial hypotension.



The control group is retrospective (n=81) and includes patients who passed through the medical facility for the period 2015-2019, who meet the criteria for inclusion in the study and to whom the usual protocol for controlled arterial hypotension was applied. The patients included in the study underwent arthroscopic or open surgical intervention depending on the preoperative diagnosis, and based on this criterion, the patients in the two groups were divided into two subgroups, open and arthroscopic surgical interventions, respectively. All inclusion and exclusion criteria for study patients are detailed.

The following research methods are applied:

Documentary, instrumental, laboratory and therapeutic clinical methods. In the statistical processing of the received information, multilateral statistical analyzes with a modern statistical information package were applied.

In the "Results and Discussion" chapter, Dr. Ivanova makes the following important conclusion following from the dissertation work, namely that applied as a technique for controlled hypotension, the interscalenus plexus block is an important part of multimodal analgesia in the postoperative period. This regional block provides stable intraoperative hemodynamics, a good level of analgesia, significantly reducing the need for anesthetics and analgesics in the perioperative period. This technique is also suitable for post-operative analgesia. An indirect positive effect of the technique is the significant reduction of known adverse reactions from the administration of opioid analgesics, used routinely to relieve moderate and severe postoperative pain, as well as the level of patient satisfaction and the possibility of earlier rehabilitation.

The Results and Discussion chapter is richly illustrated with figures and tables. In the last part of the section, Dr. Ivanova presents the Algorithm for controlled hypotension and postoperative pain control developed on the basis of the entire dissertation work. It describes sequentially each procedure before, during and after leaving the operating room, as well as the monitoring of patients in an orthopedic and trauma clinic within the first postoperative day.

A "Discussion" section is deployed in the presentation of the results, with each one being commented and analyzed in detail by Dr. Ivanova.

A total of 8 conclusions were drawn, which I fully accept.

5 scientific-practical and 3 scientific-theoretical contributions have been systematized. For me, the 5th scientific-practical contribution has the most significant practical value, namely the introduction of a protocol for postoperative pain relief in shoulder surgery. It shows a comprehensive understanding of the methodology, technique, indications, contraindications, positives and expected negatives, all of which are systematized in a repetitive procedure with the possibility of daily clinical application.

Dr. Ivanova presents two publications related to the topic, published in the journals "Anesthesiology and Intensive Care" and "Varna Medical Forum".

Conclusion: Based on the presented dissertation work, I believe that Dr. Ivanova has thoroughly, comprehensively and comprehensively developed her scientific thesis regarding a modern method in anesthesiology, treating the problem of intraoperative bleeding, improving the working conditions of the surgical team and optimal perioperative anesthesia .

Valuable scientific-theoretical and scientific-practical contributions have been made, and a problem of anesthesiology and intensive care has been examined, which has not been developed and analyzed in detail and in depth at the moment, and for which there is no generally accepted algorithm and protocol for application in Bulgaria.

Already from the conclusions in the literature review, it is clear that regional techniques, and in particular the ultrasound-guided interscalenus plexus block, are not routinely advocated in practice. There are also few studies that have investigated the effect of preoperatively performed IBS on intraoperative hemodynamics and, in particular, its relation to the controlled hypotension technique. This and not only makes the dissertation work of Dr. Zdravka Ivanova significant for the development and improvement of the methods and techniques of regional anesthesia and everything accompanying them in the specialty "Anesthesiology and intensive care.

This gives me reason to confidently recommend to the respected members of the Scientific Jury to give a positive assessment of the dissertation work of Dr. Zdravka Ivanova Ivanova for the acquisition of the educational and scientific degree "Doctor".

09/04/2024

Sofia  
Bakalivanov/

Sincerely:

/ Assoc. Prof. Dr. Lubomir Stefanov

Заличено на основание чл. 5,  
§1, б. „В“ от Регламент (ЕС)  
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