

To the Scientific Jury
Determined by the Rector
of MU "Prof. Dr. Paraskev Stoyanov" Varna
By order No. R-109-311/02.08.2022

OPINION

By Assoc. Prof. Teodora Nedeva, M.D., Ph.D.

RU "Angel Kanchev", FOPHHC, Department of "Medical, Clinical and Diagnostic Activities",
Deputy Head; COC - Ruse, AICU - doctor

Subject: Doctoral thesis on " INTRAOPERATIVE AND POSTOPERATIVE
ANALGESIA WITH TAP-BLOCK IN PATIENTS WITH LOWER MIDLINE LAPAROTOMY",
in the scientific specialty "Anesthesiology and intensive care", professional field 7.1 Medicine.

Author of Dissertation: Atanas Cankov Zanev, MD

Dear Colleagues,

I received a set of documents which contained: orders, declarations, CV, abstract of the dissertation, list of publications and dissertation of Atanas Cankov Zanev, MD. Their type and volume completely fulfill the requirements for the development of academic staff of MU Varna, for awarding the ESD "Doctor". According to the order of the Rector of MU "Prof. Dr. Paraskev Stoyanov" Varna, with No. R-109-411/26.10.2022, I am included in the Scientific Jury and after a decision from its first meeting, I am appointed to prepare an opinion on the dissertation work (report No. 1/27.10.2022).

1. **Brief biography of the researcher:** Dr. Atanas Tsankov Zanev was born on 14.07. 1983 in the town of Silistra. He completed his primary and secondary education in his hometown, and his higher education at the University of Varna. In 2008, he started his career as a doctor in ED - Dulgopol, in the period 2009 - 2011 he was a doctor in the ED of MHAT "St. Anna" Varna, in 2011 in the ED of UMHAT "St. Marina" Varna, In 2012, she was appointed and specialized AIC in the CAIC of UMBAL "St. Marina" Varna. In February 2018, he acquired the AIC specialty, and since 01.03.2014 he has been an assistant at the CAEIM of the University of Varna, where he continues to work. He teaches Bulgarian students AIC, Emergency Medicine and "Professional Behavior in Incidents at the Seashore" healthcare workers. Participates in Bulgarian and international specializations and trainings programs of AIC and Marine Medicine. Member of BDS, Society of Anesthesiologists in Bulgaria, Bulgarian Association for Research and Treatment of Pain, ESA, ESRA, IASP. There are 8 publications in Bulgarian magazines, in Bulgarian and English. Participates in national and international scientific forums, in 3 of them with posters
2. **Annotation of the problem:** Pain is a phenomenon that accompanies every individual throughout his life. It is the main cause of suffering, negative emotions and deteriorates to varying degrees the quality of life of a person, reduces his productivity and work capacity, leads to financial, emotional and social damages for the sufferer and his relatives. Attempts to

define, classify, diagnose and treat pain, began hundreds of years ago. However, despite this, there are still plenty of aspects for the medical community to research, evaluate and use new methods and agents for pain treatment. Pain caused by noxious stimuli is a stress that can threaten and disrupt the body's homeostasis. The body's adaptive response to pain involves physiological changes that are beneficial and potentially life-saving in the initial stages. If the painful stimulus and response of the body continues, harmful and life-threatening effects can follow. Pain threshold and responses are very individual. The body responds to pain through multiple interrelated physiological processes on the part of the sympathetic, neuro-endocrine and immune systems, as well as through emotions. Human responses are mediated primarily by the hypothalamic-pituitary-adrenocortical axis and the sympathomedullary pathway and include the release of mediators such as cortisol, adrenaline, norepinephrine, growth factor, and cytokines. Pain can be described in several aspects: character, location, intensity, emotional impact and frequency, as its intensity is most indicative of its perception by the patient. Pain after surgery continues to be a major challenge for medicine worldwide. Current knowledge allows a good understanding of the physiology, pharmacology and mechanism of pain. However, the percentage of patients suffering from postoperative pain is significant. Modern concepts of good postoperative analgesia, with minimal side effects and complications from therapy, is the application of a multimodal approach, including: preemptive analgesia; systemic analgesia; regional analgesia. Part of this approach is the TAP block technique, applicable in abdominal surgery. Despite the introduction of ultrasound navigation as a routine method when performing various regional techniques, the TAP block is not widely used by Bulgarian anesthesiologists, for various reasons. This is sufficient reason to start studies on intra- and postoperative analgesia, to develop a protocol and include it in the scheme for multimodal analgesia. The choice of topic, the selection of patients, the confirmation of a technical approach in the implementation, the application of different groups of medications deserve admiration. The goals and tasks through which the author fulfills them give the colleague's research a uniqueness in the Bulgarian anesthesiology science. The thesis is extremely up-to-date, innovative, it offers the anesthesiology community in Bulgaria a more - different in clinical and pharmaco-economic aspects - approach to analgesia in abdominal operations, and this in itself sufficiently proves the dissertability of the chosen topic.

3. **Analysis and evaluation of the dissertation work:** I approach my colleague's work with the clear awareness that dissertations are unique works of authorship. Despite the guidelines taught in doctoral schools, there are no strictly fixed frameworks for writing a doctoral thesis, but nevertheless exemplary models confirmed over time by the scientific community are followed.
 - 3.1. **Overall Volume and Structure:** This dissertation contains 157 standard pages. The author's research and literature data are presented in 14 sections, the second, fourth, seventh, eighth, and fourteenth of which also have subsections. It is illustrated with 49 tables, 8 photos and 36 figures.

The distribution of information is as follows: Abbreviations used in the text - 1 page, Introduction - 2 pages, Literature review - 42 pages, Aim and objectives - 1 page, Objects and methods of clinical research - 14 pages, Results and Discussion - 54 pages, Conclusions - 1 page, Contributions - 1 page, Bibliography - 13 pages and List of publications - 1 page.
 - 3.2. **Format and content of sections:** In my assessment, the paper is written clearly, with good expression and style. The "Contents" tab lists points out the pages of the different sections. This allows they could be quickly and easily found in the exhibition. The layout and

formatting of the pages is good and makes the information easy to read. All tables, photos and figures are clearly explained, which greatly contributes to the understanding of the obtained results. The different sections are titled and follow as in generally accepted models for a presentation of a doctoral thesis.

Section "Introduction": the main characteristics of the research problem, historical data and the position of the author regarding her choice to study this particular topic are presented.

"Literature review" section: the definition, anatomical substrate and classification of pain, the generally valid tools and evaluation scales, the modern approaches to postoperative analgesia – systemic (non-opioid, opioid analgesics, adjuvants) are presented; regional techniques and the reasons for ineffectiveness in postoperative pain control are discussed. It is focused on the indications for lower median laparotomy; the importance of the TAR block, the various techniques for its implementation, the selection of an appropriate medication and a comparison with the effects of other regional techniques. Studies and positions of various foreign authors are presented. I am very impressed by the assessment of the application of TAR block and the difficulties in anesthetizing patients in our country. Admirations for the summary analysis of the literature data and its presentation in a very concise form in 15 sub-points. Of them, it is completely natural and logical: it is considered that the topic is current, innovative, little known among Bulgarian anesthesiologists, who still do not routinely use TAP - block analgesia in their daily practice; categorically dissertable and unique for the country, and the main goal and tasks that the dissertation student sets for himself are outlined. It is accepted that the literature review should be about 30% of the total volume of work. In the current one, this is observed.

Aims and Objectives Section: The main aim of the study and the six objectives associated with it are clearly stated, concisely and I fully accept them as such.

Section "Materials and methods": The paper was developed on the basis of a retrospective and prospective study covering a 6-year period (2016-2022). 3 groups of patients were formed and studied (according to the requirements and after approval by KENI of MU Varna), which from a clinical, practical and scientific point of view in the descriptions of the results are divided and compared as 2 groups: experimental (with TAR - block) and control (without TAR - block). On the basis of inclusion criteria, 171 patients over the age of 18 were selected and included in the study, with operative interventions - lower median laparotomy, according to their preoperative status they were assessed at ASA I - III, all signed the generally accepted for UMBAL "St. Marina" informed consent forms, as well as a declaration for the application of the regional technique TAR - block and for the processing of personal data.

"Methodology of the clinical study": presents in detail the methods of assessment and follow-up of the included patients: documentary, clinical, imaging, laboratory, therapeutic methods (surgical and various anesthetic techniques, for introduction, maintenance and monitoring of vital signs during anesthesia and in the postoperative period; implementation of TAR - block, in descriptive and pictorial form; assessment of analgesia effectiveness and complications of opiate administration), statistical methods. Statistical data processing is with up-to-date software products, including classic and newer data analyses.

"Results and discussion" section: in great detail, on 54 pages, the data received by the dissertationer for the various periods - pre-, intra- and postoperative - are reflected in tabular, graphic and narrative form. They compare their own with the world's results. The solution of the set tasks is presented in fulfillment of the main objective of the research. I

believe that the obtained results are valuable in terms of type, volume and conclusions comparable to world practice and are extremely important for our clinical work. It would be very appropriate for the dissertation to continue to present them to a wider audience of anesthetists, so that they are useful in our daily practice in the treatment of patients with abdominal pathology in whom it is appropriate to use a TAP block as part of a multimodal approach to analgesia. I positively appreciate the fact that the author describes the postoperative complications - nausea, vomiting, sedation, technical difficulties in performing the block, hemodynamic collapse, etc., which he discussed and compared with data from other similar studies in the "Conclusion" Section

"Conclusions" section: 8 conclusions are clearly formulated. I accept them without any remarks - my opinion is that the six conclusions regarding perioperative behavior towards patients with pheochromocytoma can be summarized.

Section "Contributions": they are summarized in 4 scientific - practical and 3 scientific - theoretical. They are clearly and logically described and I accept each of them.

The author presents all the applications and forms he used for his research.

As a whole, I do not have any critical marks and notes.

Bibliography section: 230 literary sources are included, which are sufficient for a detailed study of the experience of various researchers. They are arranged alphabetically, starting with those in Cyrillic. There are 10 Bulgarian publications, which, in my opinion, is a confirmation for the good choice of the doctoral thesis, uniqueness and dissertability of the chosen topic.

The author presents 2 scientific publications on the subject of the dissertation, which, according to the requirements of the Varna University, is sufficient activity for the acquisition of the ESD "Doctor".

4. **Abstract** is printed on 100 pages. It presents information about the content of the dissertation in a compressed version. This is appropriate because it allows the reader to get acquainted with the main ideas of the scientific research and quickly and easy to find the obtained results conclusions and contributions.

Conclusion: based on the aforementioned, I think that the presented doctoral thesis is very valuable in practical and scientific terms.

I am thus certain in granting POSITIVE assessment of the scientific thesis and vote "YES", to award the ESD "Doctor" to Atanas Cankov Zanev, MD



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15.11.2022

/ Assoc. Prof. Teodora Nedeva, MD, PhD/