

REVIEW

From

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Appointed as an official reviewer according to Order № P-109-188/15.03.2023 from the
Rector of MU – Varna

Based on Art. 45, para. 1 and 2 of the Regulations for development of the academic staff in
MU – Varna

Subject: Dissertation paper “Neuroendoscope-assisted evacuation of chronic subdural
hematos” presented by Dr. Stefani Mariyanova Todorova, assistant at MU “Prof. Dr. Paraskev
Stoyanov” - Varna; UH “Saint Marina” – Varna, Clinic of Neurosurgery for the acquisition of
educational and scientific degree “Doctor” in the scientific specialty “Neurosurgery” -
Professional Field 7.1. Medicine, Area of higher education 7. Healthcare and sports.

1. General presentation of the procedure and the doctoral student:

Doctoral student Dr. Stefani Mariyanova Todorova presents a set of materials on paper and electronic media that meet the requirements of Art. 44, para. 3 of the procedure for acquiring the educational-scientific degree "Doctor" from the Regulations for the development of the academic staff at MU-Varna. The set of documents contains: the doctoral student's curriculum vitae, a formatted, bound dissertation and an abstract, the protocol of the doctoral examination, the enrollment order, the protocol of the Departmental Council with a positive review, a list and copies of the publications related to the dissertation and the necessary notarized copies of diplomas, author's reference for compliance with the minimum national requirements, declarations of originality, for the authenticity of the submitted documents for protection.

2. Brief biographical data:

Dr. Stefani Mariyanova Todorova was born in Razgrad in 1992. In 2011 She graduated from the "Konstantin Preslavski" High-school of Varna with excellent results. In 2017 graduated Medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna. After her graduation, she was appointed to the Neurosurgery Clinic at "Sveta Marina" UH EAD - Varna as a physician. From 2018 is a resident and since 2019 is a doctoral student at the Department of Neurosurgery and ENT Diseases at the Medical University - Varna. From 2020 is an assistant at the Department of Neurosurgery and ENT Diseases of the Medical University - Varna.

3. Relevance of the topic of the dissertation:

The topic, which Dr. Stefani Mariyanova Todorova has chosen is important and relevant. It affects a significant problem of medical care and treatment of patients with chronic subdural hematomas. Their number is increasing worldwide and nationally due to the main factors - the aging of the population in combination with the widespread use of anticoagulants and/or antiplatelets. This problem is a serious challenge for public health care in our country, it is related to the growing requirements and technological possibilities for treatment and care of patients.

4. Structure and content of the dissertation:

The dissertation contains 115 pages, including 3 tables, 37 figures, and 15 photographs. 201 literary sources are cited, of which 3 are in Cyrillic and 198 are in Latin. The work is structured as follows: introduction, five chapters, conclusions, conclusion, contributions, references.

The literature review is within 42 pages, shaped and structured very well. It shows the doctoral student's excellent knowledge of the subject, systematicity and wide scope of the issues under consideration. The in-depth review of the literature on the subject of leading domestic and foreign authors and documents reveals the essence and significance of the researched problem.

The citations which are made are properly labeled and described. A wide range of literary sources from the Bulgarian and especially from the world medical scientific literature on the subject was used.

In the second chapter of the dissertation, the purpose, tasks and hypothesis of the research are described. The aim of the dissertation is formulated precisely, clearly and summarizes the main strategy of the doctoral student - to evaluate endoscope-assisted evacuation of chronic subdural hematomas.

Seven goal-relevant tasks are specified that are specific and realistic. A hypothesis was formulated, which is the starting point of the dissertation work, considering the endoscope-assisted evacuation of chronic subdural hematomas, as a safe and effective method for patients, including those in the elderly, being a minimally invasive surgical method of treatment with favorable outcome of the disease.

A total of 151 patients who underwent surgical treatment for chronic subdural hematoma were included in the study. The gender distribution is as follows: 108 men and 43 women. The average age is 70.56 years, with a standard deviation of 13.98.

The analysis of the location of subdural hematomas shows that unilateral chronic subdural hematomas predominate (74.2 %) compared to bilateral ones (25.8 %), and of the unilateral ones, left-sided subdural hematomas prevail (45.7 %). The average length of stay of the patients in the medical facility was 6 days \pm 3.7 days (3-34 days). The mean size (width) of the subdural hematoma was 15.5 mm \pm 10.07 mm, ranging from 4 mm to 67 mm.

The presented results are structured according to the set tasks. All analyzes are arranged systematically and richly illustrated, which supports their perception and conclusions. The dissertation student makes a relevant analysis of the obtained results.

5. Research methodology and organisation:

The methods which are used are detailed and comprehensively described. The research is retrospective in nature and was conducted for the period 2011-2021. The presented material is reliable, convincing and sufficient for the logically presented results and general conclusions. The obtained results were processed using statistical methods - variation, dispersion, correlation and comparative analyses, risk assessment analysis.

The results of the present study show that 11.9% of patients with cSDH reported alcohol use, and 17.7% of those taking anticoagulants. Patients with hematological diseases are 4.6%, which are characterized by a long hospital stay, a complicated clinical picture and, in most cases, a fatal outcome.

Precise indications and contraindications for the intraoperative use of a neuroendoscope in the evacuation of chronic subdural hematomas are presented, as well as a Protocol for the intraoperative use of an endoscope in the neurosurgical operative treatment of chronic subdural hematomas. Additionally, recommendations are formulated for the intraoperative use of an endoscope in the neurosurgical treatment of patients with chronic subdural hematomas.

6. Results, discussion and conclusions:

The results of the present study indicate that endoscopically assisted evacuation of chronic subdural hematomas may be a safe and effective operative technique.

The results are presented in well-designed tables and charts that contain the statistics necessary to quickly perceive significant differences. The obtained results and their discussion fully correspond to the formulated hypothesis, goal and tasks of the doctoral student, and the analysis of the presented results gives the opportunity to logically reach the conclusions.

The discussion and comparative analysis made are with results from similar studies abroad. The discussion follows the logic of the study and reasoned comments on the results.

Six general conclusions are formulated, which follow correctly and logically from the analysis of the results. I believe that it could be more, given the collected empirical material and data. The conclusions are specific, but at the same time comprehensive and reflect the most important conclusions obtained from the research.

The scientific work is well structured, written in the standard academic style of presentation, clear and specific. From the presentation of the literature review, the tasks set, the results obtained and the conclusions drawn, the author's ability to chronologically and consistently follow the problems of the scientific topic and logically analyze the obtained data is evident.

Based on these qualities, she makes relevant generalizations and subsequently significant conclusions, having scientific-theoretical and scientific-practical value.

7. Contributions and significance of the scientific work:

The contributions presented in the present scientific work are the result of the scientific and practical activity of the doctoral student, namely:

- A comprehensive characteristic of patients with chronic subdural hematoma is presented, risk factors are assessed and a patient risk profile is created.
- The effectiveness of the neuroendoscope-assisted evacuation of the subdural hematoma has been proven before the classical surgical intervention.
- Based on a thorough analysis of the existing specialized literature and the results of the study, indications and contraindications for the application of neuroendoscope-assisted evacuation of subdural hematoma have been formulated.
- A protocol for the intraoperative application of an endoscope in the neurosurgical interventions of chronic subdural hematomas was introduced in the Neurosurgery Clinic of UH "St. Marina", city of Varna as a routine method of surgical treatment.
- The recommendations for the intraoperative application of an endoscope in the neurosurgical treatment of patients with chronic subdural hematomas were formulated based on statistical processing and data analysis.

8. Abstract and publications related to the dissertation work

The abstract is well arranged and meets the requirements, reflecting the main results achieved in the dissertation. It is developed in a volume of 56 pages, illustrated with figures and tables. Correctly structured, written in clear and precise language fully reflects the issues and conclusions developed.

Related to the dissertation, the doctoral student presents 1 publication in which she is the leading author. The publication was printed in a specialized international edition in

English: Todorova S: Endoscopically – assisted evacuation of chronic subdural hematoma – new gold standart?, International Bulletin of Otorhinolaryngology. 3/2022, 10-13.

CONCLUSION

The dissertation work developed and submitted for defense by Dr. Stefani Mariyanova Todorova, on the topic: "**ENDOSCOPE - ASSISTED EVACUATION OF CHRONIC SUBDURAL HEMATOMAS**" with supervisor: Prof. Dr. Yavor Petkov Enchev, MD, PhD, MedSci is related to an important, current and socially significant pathology in neurosurgery, is properly structured and meets the existing regulatory requirements. The doctoral student possesses the necessary theoretical knowledge, demonstrates qualities and skills for independent conduct of scientific research.

The dissertation work of Dr. Stefani Mariyanova Todorova is a fully completed scientific work devoted to an actual problem of pragmatic value in neurosurgical practice. The dissertation student has presented credible results and made appropriate conclusions in the dissertation with a definite significant clinical application. That is why I consider that the doctoral student Dr. Stefani Mariyanova Todorova fully meets the requirements and criteria for awarding the general educational and scientific degree "Doctor" in the doctoral program in "Neurosurgery", for which I vote positively!

Pleven,

27.04.23

Assoc. Prof. Dr. Mladen Evtimov Ovcharov, MD



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