

To the member of the Scientific Jury

defined by letter of appointment № RD-26-2087/05.10.2022 of the Executive Director of "N.I.Pirogov" about competition for the acquisition of the educational and scientific degree "DOCTOR" in the scientific specialty "General Surgery".

I am presenting a review

Professional direction: 7.1 Medicine

Doctoral program: 03.01.37 General Surgery

The author of dissertation: D-r Sultana Bozhidarova Karamanova-Piperkova to the Primary Scientific Unit for "General Surgery" of UMHATEM "N.I. Pirogov"- Sofia

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Review

on

D-r Sultana Bozhidarova Karamanova-Piperkova's dissertation thesis titled "Traumatic lesions of the blood vessels of the extremities. Diagnostic and surgical problems" for awarding the degree "Doctor" of Medicine

It is made by Prof.Alexander Chervenjakov PhD in Medical science – UMHAT "Sofamed" Faculty of Medicine St.Kliment Ohridski University – Sofia, Department of Chest surgery

1. General presentation of the procedure and the author of dissertation

The set of documents that was given to me is full and meets the requirements of The Law for Development of Academic Staff in Republic of Bulgaria and of The Regulations of the Development of the Academic Staff in UMHATEM "N.I.Pirogov" – Sofia:

- Application to Scientific Staff of UMHATEM "N.I.Pirogov" about starting procedure for defending dissertation thesis
- a curriculum vitae in European format with the doctoral student's signature
- Copy of the diploma from The Medical University Sofia with notarial attestation
- Letters of appointment for enrollment in doctoral studies and dismissal with the right of defense
- Letter of appointment for holding an exam and corresponding protocol for passing the doctoral minimum in the specialty
- Protocol for preliminary discussion of the dissertation thesis and the decisions taken to start procedure and to choose members of the Scientific Jury
- Dissertation thesis

- Author of dissertation summary
- List of scientific publications connected to the dissertation topic
- CD with Author of dissertation summary and dissertation thesis in PDF format and three information cards for..... in doc format.

2. Biographic data about author of dissertation thesis in short

Dr.Karamanova was born in 1987 in Burgas. She completed her secondary education in English Language School in Burgas and in 2012 she graduated from Medical University Sofia. In 2018 she got Magister diploma for Health Management in the Faculty of Social Health in Medical University Sofia. 2019 she became specialist in Vascular surgery. She has 10 years continuity of employment. All of them she has been working in the Department of Vascular surgery in UMHATEM “N.I.Pirogov”.

Dr.Karamanova is qualified in the filed of vascular surgery especially in a vascular traumatism, Ultrasound diagnostic and the treatment of Chronic venous decease. She takes part at National and International Congresses with presentations. She also participates in clinical trials.

She is a member of the Bulgarian Doctors Community and the National Community of Vascular and Endovascular Surgery and Angiology since 2013.

3. Actuality of the topic and advisability of the aim and tasks

Vascular traumatism of the extremities increases, not only in wartime but also during everyday life and after traffic accidents. Despite of the success achieved in this medical field in some cases postoperative results are insufficient which reveals many unsolved problems in the diagnostic and treatment aspect.

UMHATEM” N.I.Pirogov” is unique hospital where this kind of patients are most concentrated. This helps the author to make her research on 124 patients with vascular trauma of the extremities.

4. Knowing the problem.

Dr. Karamanova specialized in vascular surgery and Doppler sonography for 5 years. Even in the literary review of the dissertation work, the professional erudition of the author is impressive. During 10 years, she made an ambispective analysis of 124 patients with 187 traumatic lesions of the vessels of the limbs. A

unique clinical experience allowing processing and evaluation of the achieved results.

5. Research methodology

All modern clinical, instrumental and laboratory research methods, operational and statistical methods are used in the research methodology. These research methods allow obtaining correct results, and the use of analytical and appropriate various statistical methods ensure real and correct results. The applied methodology allows the fulfillment of the set goals and tasks, the obtaining of reliable results, the drawing of reasoned conclusions and the formation of scientific and scientific-applied contributions.

6. Characterization and evaluation of the dissertation work

Structure, volume; purpose; tasks; object; subject matter; main thesis; used scientific literature.

The dissertation is written on 166 standard typewritten pages distributed in the following order:

- I. Contents, abbreviations and introduction - up to 6 pages
- II. Literature review - 45 pages
- III. Ai and objectives – 1 page
- IV. Materials and methods (Own studies) – 8 pages
- V. Results – 21 pages
- VI. Applied Treatment Methods - 11 pages
- VII. Results - 7 pages
- VIII. Discussion - 41 pages
- IX. Conclusion – 2 pages
- X. Conclusions – 2 pages
- XI. Publications– 1 page
- XII. Bibliography - 23 pages

The dissertation topic is illustrated with 46 figures and 29 tables.

The literature review is well structured and in sufficient volume, comprehensively and multifacetedly considering modern aspects of traumatic lesions to the blood vessels of the extremities.

It is divided into eight main paragraphs covering the problem in detail. Covers historical review, topographic-anatomical features, pathogenesis, classification, etiology, classification and specific complications, diagnostic methods and applied treatment in vascular trauma.

The development of the surgical treatment of traumatic damage to the blood vessels of the extremities is comprehensively reviewed in 12 subsections with the accepted diagnostic and treatment algorithms. 307 contemporary publications are cited (59 in Cyrillic and 248 in Latin)

The purpose and tasks are clearly and concretely defined, fully corresponding to the scientific subject of the dissertation work. There are 8 tasks, logical and consistent with the set goal, and they are the basis of the studies carried out.

Material and methods

The chapter is structured correctly, and from a scientific and research point of view, the material and methods used are adequate for the purpose, the tasks and the dissertation work. The clinical experience of the ambispective study of 124 patients with traumatic lesions of the blood vessels of the extremities was reviewed. The main diagnostic methods for research with general clinical, laboratory, instrumental and operative methods are described and presented in detail. All operative interventions were applied in compliance with general surgical medical standards and the rules of good clinical practice, and the methodology used was in accordance with the type and localization of the damaged vessels. In general, surgeons always aim to preserve circulation and repair the limb. The presented classification of traumatic lesions of the main blood vessels makes it possible to systematize and evaluate the results. The statistical package SPSS Statistics v.26 was used for statistical processing, as well as the corresponding modern analyses, which allow reliable results to be obtained. For a significance level at which the null hypothesis is rejected with $p < 0.05$. Methods of: Descriptive statistics, Kolmogorov-Smirnov test, Chi-

square test are applied; Non-parametric Mann-Whitney and Kruskal-Wallis tests.

The own results are structured according to the presented 8 tasks and the data obtained from them. The results of the established mechanism of the trauma and the lesion are presented in detail and overview,

The results of the surgical treatment by groups of patients with different mechanism of the trauma are presented in detail separately, emphasizing the difficult diagnosis and applied treatment methods. Very appropriately, Dr. Karamanova has presented and visualized a large part of the voluminous information listed in tabular form.

In the Discussion chapter, the doctoral student summarizes the achieved results by making analytical reasoning and conclusions. A detailed analysis of the data and evaluation of the statistically processed results was performed. The doctoral student's own experience was compared with that of other authors, using the analysis and comparison of the achieved results in the surgical treatment of vascular injuries of the extremities. At the end of the section, the dissertation student offers an original diagnostic and therapeutic algorithm for choosing an operative method of treatment.

The conclusions, a total of 15, are clearly formulated, are based on the results of the presented work and derive from the conducted research, being a logical summary of the scientific work.

7. Contributions and significance of the development for science and practice

The following contributions of the dissertation can be highlighted:

1. For the first time in our country, the problems of diagnosis and surgical treatment of vascular injuries of the limbs are being considered comprehensively.
2. The main risk factors for the occurrence of intra- and postoperative thrombosis are indicated. The importance of accompanying diseases, causing intra- and postoperative complications, was established;
3. Analysis of late results within 1 to 3 years.
4. The created algorithms for diagnosis and treatment of patients with vascular injuries of the limbs.

8. Evaluation of publications on the dissertation work

Dr. Karamanova presented a list of 5 publications in connection with the dissertation work as the first author, published in periodical and peer-reviewed scientific publications. Reflect the proposed dissertation.

8. Personal participation of the doctoral student

The dissertation work is the personal work of the doctoral student, under the guidance of his scientific supervisors, showing very good theoretical knowledge and practical skills to carry out independent scientific developments.

10. Author of dissertation summary

The author of dissertation summary is prepared according to all requirements and adequately presents the scientific development. It really reflects the content and the main achieved results of the dissertation work.

11. Critical remarks and recommendations

I have no substantive criticisms.

12. Personal impressions

I know Dr. Karamanova personally since she started working at "Pirigov" and her regular participation with reports at national congresses, conferences and scientific forums of BSS. She is already an established surgeon, serious and thorough in her scientific developments.

CONCLUSION

The dissertation work of the free doctoral student Dr. Sultana Bozhidarova Karamanova - Piperkova "Traumatic lesions of the blood vessels of the extremities. Diagnostic and surgical problems" is dedicated to an actual problem in modern vascular surgery. It contains scientific and applied results that represent an original contribution to science and fully cover the criteria for awarding the educational and scientific degree "Doctor". The scientific development meets the requirements of The Law for Development of Academic Staff in Republic of Bulgaria the Regulations for the implementation of The Law for Development of Academic Staff in

Republic of Bulgaria and the relevant Regulations of UMHATEM
"Pirogov".

The presented dissertation shows that Dr. Sultana Bozhidarova Karamanova - Piperkova possesses in-depth theoretical knowledge in the scientific specialty of vascular surgery and general surgery, demonstrating qualities and abilities for independent conduct of scientific research.

This gives me the reason to give my positive assessment of the conducted research, dissertation work, abstract, achieved results, conclusions and contributions, proposing to the respected Scientific Jury to award the educational and scientific degree "Doctor" to Dr. Sultana Bozhidarova Karamanova - Piperkova.

11/15/2022

Reviewer:

Sofia

/Prof. Dr. Al. Cherveniyakov, PhD in Medical science/