

**ATTN: THE CHAIRMAN OF THE SCIENTIFIC
JURY AT THE MEDICAL UNIVERSITY
„PROFESSOR PARASKEV STOYANOV” OF
VARNA**

PEER REVIEW

by

Prof. Mario Draganov Stankev, MD, PhD

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of the dissertation work entitled:

DELAYED REVASCULARIZATION IN PATIENTS WITH ACUTE ARTERIAL ISCHEMIA OF THE EXTREMITIES

for the acquisition of the educational and scientific degree of ‘doctor of
philosophy’ in the field of higher education No 7. Public health and sports,
professional trend No 7.1. Medicine and
scientific speciality of ‘Surgery’

of Rumén Dimitrov Runkov, MD, PhD student in the doctoral programme of ‘Vascular
surgery’ at the Department of Cardiovascular Surgery and Angiology of the Medical
University “Prof. Paraskev Stoyanov” of Varna.

Adviser: Prof. Veselin Petrov Petrov, MD, PhD

The peer review is prepared according to the Statute-book for the application of
the Law for development of the academic staff in the Republic of Bulgaria and of the
Statute-book for development of the academic staff in the Medical University of
Varna. The Scientific jury for the public defence of the dissertation work is appointed
according to Order of the Rector of the Medical University “Prof. Paraskev Stoyanov” of
Varna No R-109-14/January 12, 2023.

The dissertation work given to me for the peer review contains 179 standard type-written pages and has the following structure:

- ✓ Contents - 2 pages
- ✓ Abbreviations used - 1 page
- ✓ Introduction - 1 page
- ✓ Review of the literature - 52 pages
- ✓ Purpose and tasks - 1 page
- ✓ Material and methods - 18 pages
- ✓ Own results - 37 pages
- ✓ Discussion - 39 pages
- ✓ Concluding remarks - 2 pages
- ✓ Conclusions - 1 page
- ✓ Literature - 18 pages
- ✓ List of publications related to the dissertation - 1 page
- ✓ Contributions of the dissertation - 1 page
- ✓ Appendix - 3 pages.

The dissertation is illustrated with 80 tables, 43 figures and one appendix. The reference list includes 182 source titles, of which there are 7 in Cyrillic and 175 in Latin. During the last three years, a total of 125 of these publication cited are printed (68,68% of the cases).

Biographical data

Rumen Dimitrov Runkov, MD, was born on January 9, 1959. In 1985, he graduated from the Higher Institute of Medicine of Varna, in the speciality of 'Medicine'. In 1985, he started to work as shop physician in Tundzha textile combine in the town of Yambol. In 1986-1991, he was intern in the Division of Surgery of St. Panteleimon Hospital of Yambol. In 1991-2011, he was intern in the vascular sector of St. Panteleimon Hospital of Yambol joint-stock company while in 2011-2021, he was head of the Division of Vascular Surgery of St. Panteleimon Hospital of Yambol joint-stock company. Since January 2022, he works as head of the Division of Vascular

Surgery of Heart and Brain Hospital of Bourgas joint-stock company. He acquired the master degree in nursing care management, in the speciality of 'Health Management' from Prof. Asen Zlatarov University of Bourgas in 2010. He acquired the specialities of 'Surgery' in 1991 and of 'Vascular surgery' in 2011. He completed a course in Doppler sonography in Sofia in 2003. He has a command of Russian language.

Publications

The PhD student has published two independent scientific articles and one article as first author with two co-authors on the topic of the dissertation work in 2022. His scientific activity during the period of the preparation of the dissertation work meets the normative requirements.

Actuality of the dissertation work

The dissertation is devoted to a particularly topical problem in vascular surgery. The acute arterial insufficiency of the extremities presents with a rising medico-social significance worldwide and in our country. Nowadays, various methods of conservative and surgical treatment are made use of. Delayed adult patients' hospitalization hampers the diagnosis of the disease and reduces the effectiveness of its treatment. The revascularization of the arteries of the lower and upper extremities is early and delayed. The PhD student uses not only standard but also distal vascular accesses when implementing the delayed revascularization in order to enhance its effectiveness and safety. Along with that, he introduces in his clinical practice the wrist-ankle index of the arteries of the upper extremities as a substantial diagnostic supplementation to the routine ankle-brachial index of the arteries of the lower extremities.

In our country, a complex comparative investigation of the application not only of the early revascularization with standard accesses but also of the delayed revascularization with standard accesses only and the delayed revascularization with standard and distal vascular accesses in the patients hospitalized after the 10th hour from the onset of the disease on the occasion of acute arterial insufficiency of the

extremities because of thrombosis, embolism or vascular injuries. This makes the theme of the dissertation work particularly topical.

Review of the literature

The literature review represents a detailed and profound analysis of the contemporary publications by foreign and Bulgarian authors on the problems of the dissertation which testifies to a very good awareness of the novelties in this interdisciplinary field.

Purpose and tasks

The purpose of the dissertation is clearly and exactly defined - to study in a comparative aspect our results from the application of the early and late revascularization in the patients with acute arterial ischemia of the extremities'. Six main tasks are formulated.

Material and methods

The investigation retrospectively analyzes the documentation of 273 patients aged between 18 and 98 years treated on the occasion of an acute arterial ischemia of the extremities during the period between January 1, 2011 and December 31, 2020 I St. Panteleimon Hospital of Yambol joint-stock company.

It deals with 102 patients with thrombosis, 117 patients with embolism, 21 patients with injuries of the arteries, and 33 patients in whom amputation of the extremity is imposed. The patients are analyzed in a comparative aspect in terms of gender, age, year of the concrete operation such as early revascularization with standard accesses, delayed revascularization with standard accesses and delayed revascularization with standard and distal vascular accesses, pre- and postoperative values of the wrist-ankle and ankle-brachial index and assessment of treatment effectiveness in dependence on the etiology and extent of the acute arterial insufficiency of the extremities.

The imaging diagnosis is realized by means of contrast peripheral angiography, echography, and Doppler sonography.

An original algorithm for diagnostic and therapeutic behavior in the patients with this disease who undergo delayed revascularization after the 10th hour from the onset of the disease is elaborated.

Suitable statistical methods for data processing are made use of.

Results

The analysis of the results obtained is structured in four chapters. They give a convincing answer of the questions defined in the concrete tasks of the dissertation work. Patients' main demographic characteristics and types of operative interventions performed in them are demonstrated. The dynamic changes of the values of the wrist-ankle and ankle-brachial index as an objective proof of patients' improvement or healing set in are followed-up. The localization of the thrombosis, embolism and vascular injury in the arteries of the lower and upper extremities is identified. A great number of serious accompanying diseases aggravating patients' treatment are systematized. The comparatively small number of the amputations of the extremities is outlined. Mortality rate is low, too. The results presented are very well illustrated with many tables and figures.

Discussion

The main results from the investigation are systematized according to the logic of the study in four chapters. The delayed revascularization with standard and distal vascular accesses statistically significantly surpasses the delayed revascularization with standard accesses only. The achievements of other contemporary foreign authors on these problems are commented, too.

Concluding remarks

In the concluding remarks, the most important achievements of PhD student's present investigation are generalized.

Conclusions

The dissertation work ends with five concrete, well-formulated conclusions which correspond as solutions to the task set. Emphasis is made not only on the

diagnostic value of the combination of Doppler sonography, wrist-ankle and ankle-brachial index but also on the effectiveness and safety of the early revascularization with standard vascular accesses and the delayed revascularization with standard and distal vascular accesses.

Contributions

I accept PhD student's six contributions of scientifically applicable and confirmatory nature.

The author's dissertation abstract is structured in accordance with the requirements as its contents completely corresponds to the dissertation work.

In conclusion, I consider that the dissertation work presented for peer reviewing and entitled 'Delayed revascularization in patients with acute arterial ischemia of the extremities' represents an own author's elaboration. This work is characterized by preciseness, originality, thoroughness and convincingness. The results achieved undoubtedly contribute to the practical activity in the field of vascular surgery. The PhD student Rumen Dimitrov Runkov, MD, possesses profound theoretical knowledge, professional skills in vascular surgery as well as qualities and skills for independent performance of a complex scientific investigation.

Based on the abovementioned, I give completely convinced my positive evaluation of the dissertation work presented and propose to the members of the honoured Scientific jury that the educational and scientific degree of '**doctor of philosophy**' is awarded to Rumen Dimitrov Runkov, MD.

February 14, 2023

Sofia

Peer reviewer:

Prof. Mario Draganov Stankev, MD, PhD

