

STANDPOINT

by Prof. Panayot Georgiev Panayotov, MD, PhD

Medical University 'Prof. Paraskev Stoyanov' of Varna

Department of Cardiovascular Surgery and Angiology

of a dissertation work 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 for a scientific speciality of 'Surgery' and doctoral programme of 'Vascular surgery', cipher 03.01.49,

approved member of the Scientific jury according to Order No R-109-576/December 17, 2021 of the Rector of the Medical University of Varna.

Theme: 'OPERATIVE TREATMENT OF CAROTID ARTERIES IN MULTIFOCAL
. ATHEROSCLEROSIS'

of Emil Dimitrov Jordanov, MD,

surgeon in the Clinic of Vascular Surgery of St. Marina University Hospital of Varna, PhD student in the doctoral programme of 'Vascular surgery' at the Clinic of Vascular Surgery of St. Marina University Hospital of Varna at the Faculty of Medicine

Adviser: Prof. Veselin Petrov Petrov, MD, PhD

PhD student's career profile

Emil Dimitrov Jordanov, MD, was born on August 2, 1976. He graduated from the First English and German Language Secondary School in Varna. In 2001, he graduated in the speciality of medicine from the Medical University 'Professor Paraskev Stoyanov' of Varna. He started to work and during the period between 2001 and 2006 was a post-graduate student in surgery at the Department of General and Operative Surgery. He acquired the specialities of 'Surgery' in 2007 and of 'Vascular surgery' in 2012. Since 2006 he works at the Clinic of Vascular Surgery, St. Marina University Hospital of Varna. He was on short-term specialization assignments in the city of Milan, Italy, in the town of Pontresina, Switzerland and in the city of Prague, Czech Republic.

Emil Jordanov, MD, performs Bulgarian- and English-language exercises in general surgery in the faculties of medicine and dental medicine as well as in vascular surgery with the students in medicine. He has a command of English, German and Russian languages.

General description of the materials presented

The dissertation and author's dissertation abstract which are presented to me in a printed and electronic format meet the requirements of the Law for development of the academic staff in the Republic of Bulgaria and of the Statute-book for its application in the Medical University of Varna. Copies of two of the publications related to the dissertation work in electronic format are presented to me, too.

The theme of the dissertation work is actual and defensible - the operative treatment of the carotid arteries affected by multifocal atherosclerosis, is directly associated with the cardiovascular diseases, the most significant cause for fatal outcomes of the people in Bulgaria. The issues are related with timely diagnosis and active treatment that can bear a high perioperative risk. The early and distant postoperative results, patients' quality of life inclusive, depend to a great extent on the timely and exactly defined indications for the operative treatment, too. In this sense, the selection of the most appropriate apparatus imaging methods for a precise diagnosis, the clinical and echocardiographic parameters as well as the assessment of the risk factors for the unfavourable treatment outcome can be particularly useful not only in the future PhD student's work but also in the work of vascular surgeons, invasive radiologists, neurologists, invasive and clinical cardiologists and cardiac surgeons in the country.

The dissertation work is presented on 205 pages and structured in five main sections with additional subsections in most of them. The main sections are: Introduction - 2 pages; Review of the literature - 59 pages; Purpose and tasks - 1 page; Clinical material and methods - 10 pages; Own results - 55 pages; Discussion - 45 pages; Concluding remarks - 2 pages; Conclusions - 1 page. The reference list includes 230 titles of which 26 of Bulgarian and 204 of foreign authors. It stresses that these papers published during the last two years are 149. The dissertation work is illustrated by 30 tables and 105 figures/charts.

The contributions indicated by the author are five of scientifically applicable and confirmatory nature.

In the **introduction**, the PhD student substantiates the significance of the problem of the multifocal atherosclerosis and its manifestations with carotid artery affections. Given the ageing of the population in Bulgaria, the diagnosis and treatment of this pathology, the exact

moment and kind of the surgical or interventional interference inclusive, become more and more important.

The review of the literature includes seven sections, some of which have subsections like the consideration of the issues of the surgical methods of treatment of the carotid atherosclerosis, postoperative patients' follow-up and individual quality of life prior to and after treatment.

The last section of the review of the literature is 'Critical appraisal of the literature on the problem circle' in which the PhD student generalizes the present level of knowledge of this pathology and its treatment in Bulgarian and world practice.

The main purpose of the dissertation is 'To study in a comparative aspect our results from the application of the carotid endarterectomy and the carotid stenting with angioplastics in the patients with carotid atherosclerosis'. The purpose is clearly defined and accentuates on the possibilities for prevention, timely diagnosis and treatment of carotid atherosclerosis.

Six tasks indicated by the PhD student are concrete and directly associated with the defined purpose.

The clinical material of the dissertation includes a retrospective investigation of data from 199 patients who are treated on the occasion of a significant carotid artery stenosis, unilateral or bilateral, during the period from January 1, 2013 to November 30, 2020. The patients are hospitalized in the Clinic of Vascular Surgery, St. Marina University Hospital of Varna where the PhD student works.

The patients with carotid endarterectomy are 107 and aged between 47 and 88 years. The second main group, the object of this investigation, is of 92 patients treated with stenting with angioplastics. The age in this group is between 45 and 84 years and comparable with patients' age of the surgical group. An analysis according to gender and age of this population as well as a time distribution of the dominating methods of treatment during the different periods of time is performed. An analysis of patients' risk profile according to their ASA classes is carried out, too. The follow-up deals with the occurrence of early complications after the operative intervention or percutaneous procedure as data are from the clinical examinations and Doppler sonography.

The surgical technique of the operations on the occasion of a carotid artery stenosis, unilateral or bilateral, is described in detail. The details when using carotid shunt and patch plastics are well-presented. A sufficient attention is paid to the technique of angioplastics and

stenting of the carotid arteries. The criteria for the application of a surgical or interventional technique for the restoration of the passability of the damaged carotid artery are indicated.

In the dissertation, attention is paid to the basic diagnostic methods used in the atherosclerotic affection of the carotids arteries. The diagnostic value of the computed tomography-assisted carotidography, Doppler sonography of the carotid arteries, diagnostic angiography and computed tomography of head/brain is described.

In the dissertation work, a special attention is paid to manifestations of the multifocal atherosclerosis accompanying the carotid pathology such as damage of coronary and peripheral arteries, as well as to the main accompanying diseases such as ischemic stroke, diabetes mellitus, etc.

The information about the parameters studied in the dissertation is collected and processed by means of modern methods including a package of the basic statistical methods used in the medical practice.

In the section „**Own results**“, Jordanov, MD, analyzes the results from his investigation and provides patients' demographic characteristics as well as the kinds of carotid interventions these patients have undergone. There are tables and charts giving a clear idea about the results from the comparisons of both patients' groups - with endarterectomy and with angioplastics and stenting. In both patients' groups, the results are comparable with those that are indicated in publications by authors from prestige medical centres.

A considerable place is devoted to the postoperative complications after the carotid endarterectomy and after angioplastics with stenting that is an important issue in the analysis of this pathology and the methods for its treatment. Data about the patients with accompanying cardiac (coronary) pathology treated operatively or through percutaneous intervention are given, too. In the light of the multifocal atherosclerosis, the treatment of each one of the clinically manifested localizations such as cerebro-vascular, cardiac and peripheral, is of importance.

In the sections '**Discussion**' and '**Concluding remarks**', the results from the operative treatment, the interventional treatment, the treatment of the accompanying diseases as well as the results in the light of the world experience are considered and an juxtaposition of the results is provided. Attention is paid to the optimal diagnostic methods applicable for the determination of the most suitable treatment. The accent on the multidisciplinary team who should discuss the patients with multifocal atherosclerosis and with affection of the

carotid arteries, cerebral circulation, heart, peripheral vessels, on the background of diabetes mellitus and other accompanying diseases is important.

In the concluding section '**Conclusions**', six conclusions are made which logically follow from the material as a whole and its exposé, the statistical analyses done and data interpretation. They confirm the value of the defined purpose and tasks for its achievement. They direct the improvement of the work when diagnosing and treating the carotid pathology that is, in many cases, one of the manifestations of the multifocal atherosclerosis.

Critical remarks and recommendations

One could pay more attention to the differences in the indications for the operative endarterectomy or percutaneous angioplastics and stenting in the light of the cerebrovascular, coronary and peripheral-vascular pathology accompanying the multifocal atherosclerosis.

Contributions of scientifically applicable and confirmatory nature - I accept that these five contributions described by the authors are significant as they are based on the results from the treatment of the patients through operative and interventional methods representing an achievement for the scientific works published in Bulgarian practice.

Conclusion – The dissertation work of Emil Jordanov, MD, is a comprehensive investigation of a significant clinical material for an 8-year period dealing with the important and actual issues of the operative and interventional treatment of the significant carotid stenoses in the light of the multifocal atherosclerosis.

Based on all the aforementioned, the actuality and importance of the problems studied in the dissertation work, I give my POSITIVE evaluation and propose to the Honoured Scientific Jury to positively vote for awarding the educational and scientific degree of 'doctor of philosophy' in the scientific speciality and doctoral programme of 'Surgery' to Emil Dimitrov Jordanov, MD.

With respect:



Prof. Panayot Panayotov, MD, PhD

January 18, 2022

City of Varna