

OPINION

from

Assoc. Prof. Dr. Tsvetan Radnev Minchev,

PhD

Head of the Department of Thoracic Surgery

Acibadem City Clinic Tokuda Hospital,

Sofia

of dissertation for awarding the educational and scientific degree PhD- "Doctor"

Field of higher education: 7. Health and sports, field 7.1. Medicine

Scientific specialty: "Cardiovascular Surgery", code 03.01.49

Author: Dr. Ivilin Plamenov Todorov, MD

Form of PhD studies: independent preparation

Institution: Scientific Council, Acibadem City Clinic Tokuda Hospital, Sofia

Topic: "SURGICAL TREATMENT IN PATIENTS WITH PROSTHETIC VALVE ENDOCARDITIS"

Supervisor: Assoc. Prof. Dr. Dimitar Nikolov, PhD, Acibadem City Clinic Hospital Tokuda, Sofia

General presentation of the procedure and the PhD student

The set of materials on paper and electronic media presented by the doctoral student is in full compliance with the requirements of the current regulatory framework in the country, namely - Art. 74, para. 1, item 1 of the Higher Education Act, Art. 24, para. 2, para 3, para 6 of the Regulations for application of the Law for development of the academic staff in the Republic of Bulgaria (PP ZRASRB) and art. 2H, para 6 of the Regulations for development of the academic staff in Acibadem City Clinic MHAT Tokuda, Sofia.

This set of materials includes the following documents:

- ✓ Application to the Director of Acibadem City Clinic Tokuda Hospital, Sofia for disclosure of the procedure for defense of the dissertation;
- ✓ CV in European format with the signature of the doctoral student;
- ✓ notarized copy of the diploma for higher education;
- ✓ orders for enrollment in doctoral studies and for expulsion with the right to defense;

- ✓ order for conducting an examination of the individual plan and the respective protocol for passing the doctoral minimum in the specialty;
- ✓ order for appointment and minutes of the meeting of the extended scientific college for preliminary discussion of the dissertation and the decisions taken for opening the procedure and for the composition of the scientific jury;
- ✓ PhD dissertation;
- ✓ abstract to the dissertation;
- ✓ list of scientific publications on the topic of the dissertation;
- ✓ copies of scientific publications on the topic of the dissertation;
- ✓ list of participations in scientific forums on the topic of the dissertation;
- ✓ declaration of originality and authenticity of the attached documents;

Dr. Todorov has attached 2 (two) full-text publications related to the topic of the dissertation.

Notes and comments on the documents

The procedure for the defense of the PhD-dissertation, as well as the related documents fully meet the requirements of the current regulatory framework in Republic of Bulgaria.

Brief biographical data

Ivilin Plamenov Todorov graduated from high school in 2001 at the National High School of Natural Sciences and Mathematics “Acad. Lubomir Chakalov ”Sofia. In the same year he was admitted to the Medical University - Sofia and graduated from medical school in 2007. In 2007 he started working as an intern at the newly opened Department of Cardiac Surgery at Tokuda Hospital - Sofia, where he still works. In 2009 he won a competition and was enrolled in the specialization in cardiac surgery at the Medical University of Sofia. Acquired a degree in cardiac surgery in 2014. In 2019 he completed a master's degree in public health and health management. From 2019 is an assistant professor of cardiac surgery at the Medical Faculty of Sofia University "St. Kliment Ohridski". He has attended a number of courses and trainings in Austria, Germany and Croatia.

On October 22, 2019, Dr. Ivilin Todorov was enrolled as a doctoral student in independent training in the scientific specialty "Cardiovascular Surgery" (order № 396 / 22.10.2019 of the Executive Director of "ACC Tokuda Hospital"). After successfully passing the exam for PhD-minimum and internal defense was deducted with the right to defense (order № 526 / 11.10.2021 of the Executive Director of Acibadem City Clinic Tokuda Hospital).

I. Relevance of the topic

The topic of the dissertation is relevant for Bulgarian medicine both in purely scientific and in scientific-applied aspect for a number of reasons.

Prosthetic valve endocarditis (PVE) is a serious, life-threatening complication of valve replacement (or valve-replacement) surgery and is the cause of 10-30% of all cases of infectious endocarditis (IE). With the progress and development of diagnostic and therapeutic options in the treatment of patients with PVE, mortality has decreased significantly over time - from 60% in the 1970s to 22.8% at the beginning of this century. The clinical course of the disease without adequate treatment is progressive and often leads to severe injuries and death. Even with timely diagnosis, adequate antibiotic and surgical treatment, mortality in these patients varies between 23% to 45% according to various publications and remains unacceptably high.

Determining risk factors and creating a prognostic model determining the increased risk of in-hospital mortality in patients with PVE is difficult. Prosthetic valve endocarditis is still associated with difficulties in diagnosing it, with determining the optimal therapeutic strategy and, unfortunately, with a poor prognosis.

The team of the Clinic of Cardiac Surgery at ACC Tokuda Hospital has nearly 15 years of experience in the surgical treatment of prosthetic endocarditis. This is a solid foundation on which Dr. Todorov stands, and is the main motivation for starting the study.

II. Knowledge of the problem

The literature review is presented in a volume of 38 pages. The author has examined in detail all current information concerning the classification and diagnosis of PVE, as well as its conservative and surgical treatment. An important place in the review is occupied by some controversial and not fully studied points, such as ambiguous data on the clinical course,

complications and mortality in patients with early and late PVE and the identification of risk factors predicting a high risk of in-hospital mortality. The review of the specialized literature ends with 11 conclusions, which is the main motivation of the author to conduct the study. All this proves a detailed knowledge of the issue by the PhD-student.

III. Research methodology

The aim of the study is to analyze the clinical characteristics and results of surgical treatment of patients with early and late prosthetic endocarditis with emphasis on nosocomial PVE, in order to determine the factors leading to a high risk of complications and in-hospital mortality. To achieve this goal, Dr. Ivilin Todorov formulated 5 tasks - specific, precise and clear, without going into unnecessary details on the one hand, and on the other to allow for an in-depth scientific study. The study is retrospective, for the period 2007-2018. and covers a contingent of 79 consecutive patients. Patients are divided into two groups (with early and late prosthetic endocarditis) depending on the time elapsed since the previous operation and the onset of infection. Two subgroups of patients with and without the use of the LIMA angiographic balloon occlusion method, in patients with previous coronary surgery and a working LIMA-LAD graft, were created to investigate the benefits and safety of the method. A comparative analysis of perioperative data between groups of patients was performed using the appropriate statistical methods.

IV. Characteristics and evaluation of the dissertation and contributions

The scientific work of Dr. Ivilin Todorov is designed on 132 pages according to the requirements and contains an introduction, literature review, research methodology with goals and objectives, materials and methods, analysis of results, discussion, conclusions and recommendations, bibliography. The dissertation material is illustrated with 9 photos, 15 figures, 5 diagrams and 38 tables. Contributions are presented only in the Abstract, where a list of publications and scientific communications on the topic is attached. The bibliography is arranged alphabetically and contains 208 cited titles, of which 11 are in Cyrillic and 197 in Latin.

Important from a practical point of view are the achieved results, presented descriptively and deductively. These results confirm that with adequate diagnosis, timely and adequate

surgical treatment, early prosthetic endocarditis is not a predictor of increased in-hospital mortality.

I highly appreciate the prognostic model presented by the PhD student, which determines the risk factors predicting a high risk of perioperative and early postoperative mortality, as well as the introduction and use of the method of percutaneous balloon angiographic occlusion of LIMA in patients with PVE.

Dr. Ivilin Todorov formulates 10 conclusions, which are based on the overall analysis of the results and are the logical conclusion of the dissertation.

V.Assessment of the doctoral student's publications and personal contribution

A list of two full-text publications related to the topic of the dissertation is presented.

After a detailed acquaintance with the dissertation and the publications related to it, I give an extremely high assessment of the overall work of Dr. Ivilin Todorov on the problems of surgical treatment in patients with prosthetic valve endocarditis.

The dissertation is an in-depth study. The work on it, the obtained results, their analysis, the conclusions made and the contributions prove the personal merits of the doctoral student.

VI.Abstract

The abstract to the dissertation of Dr. Todorov meets the requirements in terms of volume and content and gives a fairly clear idea of the nature of the development, reflects in sufficient detail the results achieved and formulated conclusions.

CONCLUSION

The dissertation of Dr. Ivilin Plamenov Todorov on "SURGICAL TREATMENT IN PATIENTS WITH PROSTHETIC VALVE ENDOCARDITIS" contains scientific and scientific-applied achievements that represent an original contribution to science and meet the requirements of the ZRA of ACC MHAT Tokuda. The presented materials and dissertation results fully comply with the specific requirements, have an original character and no plagiarism is established.

The dissertation shows that the PhD-student has in-depth theoretical knowledge and professional skills, demonstrating qualities and capabilities for independent research.

I also have a long-standing personal impression of the PhD- student's work in a combined team in complex cardio-thoracic operations.

Due to the above, I confidently give my **POSITIVE** assessment of the study and propose to the Honorable Scientific Jury to award a well-deserved educational and scientific degree PhD- "Doctor" to Dr. Ivilin Plamenov Todorov in a PhD program in "Cardiovascular Surgery", for which I am convinced voting "**for**".

12/30/2021
Sofia


Prepared the opinion:
/ Assoc. Prof. Dr. Tsvetan Radnev Minchev, PhD /