

OPINION

from

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Head of the Department of Thoracic Surgery

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of a dissertation for the award of the educational and scientific degree "**Doctor of Philosophy**"

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

Scientific specialty : "Cardiovascular Surgery", code 03.01.49

Author: Dr. Assen Stefanov Keltchev

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

Topic: "*Surgical pulmonary thrombectomy as a method of treatment for acute pulmonary thromboembolism*"

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

I. General presentation of the procedure and the doctoral student

The set of materials on paper and electronic media presented by the doctoral student is in full compliance with the requirements of the Regulations for implementation of the Law for development of the academic staff in the Republic of Bulgaria and of the Regulations for the development of the academic staff in Acibadem City Clinic Hospital 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;
- ✓ An order for conducting an examination of the individual plan and a respective protocol for passing the doctoral minimum in the specialty;
- ✓ Order for appointment 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;
- ✓ Dissertation work;
- ✓ Abstract to the dissertation;
- ✓ List of scientific publications on the topic of the dissertation;
- ✓ Copy 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. Keltchev has attached 2 (two) full-text publications related to the topic of the dissertation , as well as three participations in scientific meetings .

Notes and comments on the documents

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

Brief biographical data

Assen Stefanov Keltchev graduated from high school in 1997 at 125 Boyan Penev High School. Graduated in medicine at the Medical University of Sofia in 2004. Since 2004 he has been a volunteer associate at the Cardiac Surgery Clinic at St. Ekaterina University Hospital. In 2005 was appointed a resident doctor at the same clinic, where he worked until April 2007. In May 2007 he started working as cardiac surgery resident at the Department of Cardiac Surgery at Tokuda

Hospital in Sofia. Acquired the specialty "Cardiac Surgery" in 2013. In 2018 he completed a master 's degree in health management at SWU "Neofit Rilski". In 2018 acquires the specialty "Vascular Surgery". From May 2018 heads the Department of Cardiac Surgery at Acibadem City Clinic Cardiovascular Center . From 2019 is a part-time assistant at the Medical Faculty of Sofia University "St. Kliment Ohridski". Married, has one child. He speaks French and English.

II. Topicality 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. Acute pulmonary embolism is a socially significant disease. With the increase in the age of the population and the increase in cardiovascular and oncological diseases, there has been an increased number of patients with this disease in recent years. Depending on the different point systems for determining the risk of death, patients with acute pulmonary embolism are divided into groups, with early reperfusion therapy indicated in the highest risk groups. This type of therapy is provided by systemic fibrinolysis or surgical thrombectomy. The topic of the present study is the comparison of the two types of therapy in terms of complications and mortality.

III. Knowledge of the problem

The literature review is presented in a volume of 56 pages. The PhD student has examined in detail all current information concerning the diagnosis and various therapeutic approaches in the treatment of acute pulmonary thromboembolism, as well as its fibrinolytic and surgical treatment. The review of the specialized literature ends with a summary , which is a prerequisite for the doctoral student to conduct the study. All this proves a detailed knowledge of the problem by the doctoral student.

IV. Research methodology

The aim of the study was to determine the criteria for selecting patients suitable for surgical pulmonary thrombectomy as a method of treatment for acute pulmonary embolism (PE) in order to improve the prognosis and reduce mortality from this disease. To achieve this goal, Dr. Assen Keltchev 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 included 100 patients with acute massive pulmonary embolism who were treated with reperfusion therapy with systemic fibrinolysis or surgical pulmonary thrombectomy. Patients were divided into two groups according to the reperfusion therapy used, as follows: **Group 1**, comprising 36 patients treated with fibrinolysis and **Group 2**, consisting of 64 patients treated with surgical pulmonary thrombectomy.

V. Characteristics and evaluation of the dissertation and contributions

The scientific work of Dr. Assen Keltchev is formed on 149 pages according to the requirements and contains 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 50 figures and 43 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 242 cited titles, of which 10 are in Cyrillic and 232 in Latin.

Important from a practical point of view are the achieved results, presented descriptively and deductively. These results confirm that in properly selected patients the results of different types of reperfusion therapy are similar.

Dr. Assen Keltchev formulates 15 conclusions, which are based on the overall analysis of the results and are the logical conclusion of the dissertation.

VI. Assessment of the publications and personal contribution of the doctoral student

A list of two full-text publications related to the topic of the dissertation is presented, as well as participation in three scientific meetings on the topic.

After a detailed acquaintance with the dissertation and the publications related to it, I highly appreciate the overall work of Dr. Assen Keltchev on the problems of surgical treatment in patients with acute pulmonary embolism.

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.

VII. Abstract

The abstract to the dissertation of Dr. Keltchev 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.

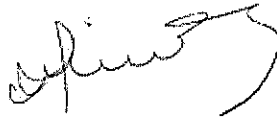
CONCLUSION

The dissertation of Dr. Assen Stefanov Keltchev on " Surgical Pulmonary Thrombectomy as a Method of Treatment for Acute Pulmonary Embolism "contains scientific and applied scientific achievements that represent an original contribution to science and meet ALL the requirements of the laws in Republic of Bulgaria. 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 doctoral student has in-depth theoretical knowledge and professional skills, demonstrating qualities and capabilities for independent research.

Due to the above, I confidently give my **POSITIVE** assessment of the study and propose to the Honorable Scientific Jury to judge and fully deserved educational and scientific degree "Doctor of Philosophy " of Dr. Assen Stefanov Keltchev in a doctoral program in "Cardiovascular Surgery", for which I confidently vote "**FOR**" .

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Sofia
/



/ Assoc. Prof. Dr. Tsvetan Radnev Minchev, MD