

Opinion

by Prof. Penka Stefanova-Peeva, MD, PhD

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of a dissertation for the award of the educational and scientific degree "Doctor of philosophy" in professional field: 7.1. Medicine, doctoral programme: Urology of the doctoral student Dimitar Todorov Delkov entitled "Oncometabolites in urine - a new opportunity for early detection and prognosis of the clinical course of verified prostate cancer".

Form of the doctoral study: part-time

Department: Urology and General Medicine, Faculty of Medicine, Medical University of Plovdiv

Supervisor: Prof. Ivan Dechev, MD, PhD
Assoc. Prof. Yordanka Uzunova, PhD

1. General presentation of the procedure and the doctoral student

The presented set of materials on paper and electronic media is in accordance with Art. 70 (1) of Section I. Acquisition of educational and scientific degree "DOCTOR" and scientific degree "DOCTOR OF SCIENCE" at Medical University-Plovdiv; Regulations of Medical University-Plovdiv as of 28.01.2021 and includes the following documents:

- Application to the Rector of the Medical University -Plovdiv for opening 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, for deductions with the right to defense
- order for conducting an exam from the individual plan and the respective protocol for passing the exam or doctoral minimum in the specialty
- the minutes of the Department Council for preliminary discussion of the dissertation work and the decisions taken for opening the procedure and for the composition of the scientific jury
- dissertation work
- abstract
- list of scientific publications on the topic of the dissertation
- copies of scientific publications
- list of participations in scientific forums
- declaration of originality and authenticity of the attached documents
- other documents related to the course of the procedure

The doctoral student has attached three publications.

The doctoral student Dr. Dimitar Todorov Delkov graduated in medicine at the Medical University-Plovdiv in 2005. From 2008 to 2013 he was a trainee specialist doctor in the Department of Urology at the Medical University-Plovdiv. During the same period he worked as a doctor at the Eskulap Hospital in Pazardzhik. Since 2013 until now he has worked as an

assistant in the Department of Urology and General Medicine, Faculty of Medicine, Medical University of Plovdiv.

2. Relevance of the problem

Prostate cancer is in the top 10 malignancies worldwide. It is the second most common malignant neoplasm after lung cancer, with about 270,000 deaths each year from the disease. Defining it as a socially significant disease is based on its epidemiological characteristics, which place it second in frequency in Bulgaria after lung cancer and in the same place in terms of cancer mortality. It is extremely important and necessary to develop effective and specific methods for screening and early detection of prostate cancer, which is the reason I find the topic extremely relevant. The purpose of the scientific work is clearly formulated with the set four tasks.

3. Knowledge of the problem

Dr. Delkov shows in-depth knowledge of the problem, which is evident from the literature review of 36 pages, written in strictly scientific language and without unnecessary details. The doctoral student obviously knows very well the classical methods for the diagnosis of prostate cancer, their reliability, limitations and shortcomings and their applicability for treatment. On the other hand, he is familiar with the new biomarkers still under study and their biochemical origins. The conclusion at the end of the literature review allows to outline the controversial and unresolved issues about the use of oncometabolites in the urine in the early detection of prostate cancer, and when it is proven - for its course.

4. Research methodology

A modern analytical research methodology has been chosen - liquid chromatography with mass detection, which allows achieving the set goal and obtaining an adequate response to the tasks in the dissertation. The study groups and the criteria for inclusion and exclusion of the participants in the respective group are described in detail, as well as the protocol of the study with the used clinical and laboratory methods.

5. Characteristics and assessment of the dissertation and contributions

The dissertation was written on 107 pages. It contains the following chapters - introduction-3 pages, literature review-36 pages, goals and objectives - 1 page, materials and methods-7 pages, results and discussion-36 pages, conclusions-2 pages, contributions-1 page, literature used - 15 pages (154 sources). The cited literature covers sources in Bulgarian and English and 70% of it has been published in the last 20 years. The results are illustrated with 29 figures and 17 tables and the conclusions are formed according to modern requirements for in-depth scientific work. Statistical methods are appropriately chosen. Concentrations of eight oncometabolites in urine were determined and normalized to creatinine. To assess the diagnostic potential of biomarkers with statistically significant differences in the two groups, performance curves (ROC curve) of each indicator and those that include panels of

biomarkers were constructed. The significance of differences in the concentrations of individual metabolites in six age subgroups in cancer patients and in subgroups according to staging used by the International Society of Urological Pathology (ISUP grade) was assessed. Correlation coefficients between the studied metabolites and PSA values were calculated. The doctoral student shows in-depth and critical reflections on the results obtained.

I believe that the research has a scientific and applied nature and is based on the results obtained.

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

Dr. Delkov has presented three full-text publications in connection with the dissertation - two in journals and collections with ISSN and one accepted for publication in a journal referenced in Web of Science with impact factor. He is the first author of the publications, which proves his personal contribution to the study. The results were presented at three scientific forums, one of which was abroad.

I have insignificant remarks on the research and the presented materials, which in no way diminish the importance of scientific work.

7. Abstract

The abstract is formatted on 45 pages, structured correctly, its content meets the objectives, corresponds to the dissertation and meets the requirements for abstract.

CONCLUSION

I believe that the dissertation of Dr. Dimitar Todorov Delkov is relevant, well-structured, with excellent methodology and reliable results. It contains scientific and scientifically applied results, which are an original contribution to science and meet the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations of the Medical University-Plovdiv.

The dissertation shows that the doctoral student has in-depth knowledge and professional skills in the scientific specialty Urology and demonstrates qualities and skills for independent research.

Due to the above, I confidently give my positive assessment of the research presented in the dissertation, abstract, results and contributions and propose to the Honorable scientific jury to award educational and scientific degree "Doctor of phylosophy" to Dr. Dimitar Todorov Delkov in the doctoral program "Urology".

Заличено на основание
Чл.5 §1, б."В" Регламент (ЕС)2016/679

27.04.2022

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