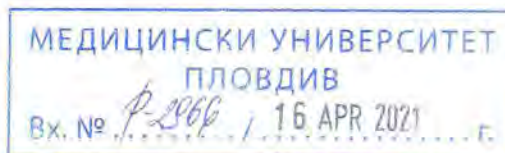




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STATEMENT



By: Prof. Nachko Iliev Totsev, MD, PhD

Head of the Department of Diagnostic Imaging and Radiotherapy, Medical University - Pleven
Appointed for preparation of a statement with Order № R-422 / 25.03.2021 of the Rector of the Medical University - Plovdiv.

Regarding: PhD Thesis of Katya Angelova Doykova, MD

Topic: "pSW-ELASTOGRAPHY OF THE LIVER AND SPLEEN IN THE ASSESSMENT OF LIVER STIFFNESS IN CHRONIC VIRAL HEPATITIS AND LIVER CIRRHOSIS WITH VIRAL ETIOLOGY"

For awarding educational and scientific degree "Doctor "

In area of higher education: 7. Healthcare and sports

Professional field: 7.1. Medicine;

Doctoral program in the scientific speciality: Medical radiology and Rentgenology

Form of doctoral study: independent

Department: Diagnostic Imaging, Medical University Plovdiv

Scientific supervisor: Ass. Prof. Silvia Bogdanova Tsvetkova-Trichkova, MD, PhD

Regarding the application of:

Katya Angelova Doykova, MD was born on 03.01.1987 in Plovdiv. In 2006 is graduated from Secondary Mathematical School "Akad. Kiril Popov", Plovdiv. She went to Medical University of Plovdiv, graduated in 2013. As a student, during 2009 and 2013, she work at the Clinic of Gastroenterology in University hospital Kaspela, Plovdiv. In period 2013-2015, she work as a trainee in Clinic of Endocrinology in the same hospital. From April 2020 until now she is a doctoral student in the Department of Diagnostic Imaging in Medical University Plovdiv. She is "Assistant- Professor" in the same Department since January 2017. She has a Diploma of Radiologist since 2020. She works as a radiologist in the Department of Diagnostic Imaging in University Hospital Kaspela, Plovdiv, Bulgaria.

General characteristics of the candidate's research and applied research activity

Katya Doykova, MD has training courses in Medical University Plovdiv in ultrasound diagnostics, emergency imaging and educational problems in medical education. She participated in international courses in "CT colonoscopy", Diagnostic imaging of the liver, contrast enhanced ultrasound. She won a Grant in Young ESGAR Mentorship program in 2021.

Katya Doykova, MD, speaks fluent English.

She is a member of the following professional associations and scientific organizations:

- Bulgarian Association of Radiology
- European Society of Radiology
- Bulgarian Medical Association

In the procedure for awarding the educational and scientific degree "Doctor", Katya Angelova Doykova, MD, participates with a PhD thesis and an Author's summary.

The list of the scientific publications includes a total of 3 scientific articles in Bulgarian journals, one of them has impact rang. She has 3 abstracts in scientific forums: poster session in Bulgarian forum and two in poster sessions in international scientific forums (Balkan Congress of Radiology and European Congress of Radiology).

The topic is based on a complex diagnostic problem, which is an alternative to the liver biopsy and is relevant for our country due to the non-invasiveness of the methodology. It is a modern non-invasive method of diagnostics of patients with chronic liver diseases- chronic viral hepatitis and liver cirrhosis with viral etiology. The essential thing when getting acquainted with the scientific production of Dr.Doykova is that she knows very well the state of the problem and the change in the level of knowledge in recent years.

The literature review is written in a very good scientific style and the information is presented very accessible. The new data about changes in spleen stiffness in chronic liver diseases is explained very clear, especially in chronic viral hepatitis B and C and its complications – liver fibrosis, portal hypertension and esophageal varices.

Unresolved problems in elastography for the assessment of liver fibrosis are presented. Attention is also paid to the most modern scientific research on magnetic resonance elastography, MR perfusion and diffusion of the liver.

These prerequisites were possible at the University Hospital "Kaspela" Plovdiv and the Department of Diagnostic Imaging in Medical University Plovdiv, where Dr.Doykova have the chance to work and to collaborate with prominent clinicians of this institution and under the scientific guidance of the Department of Diagnostic Imaging.

Characteristics and assessment of the dissertation

The dissertation is written on 131 pages, contains 61 figures, 26 tables and 2 high quality diagrams. It is in accordance with the requirements of Medical University Plovdiv for structuring and volume content. It is written in a clear, concise style. The tables and graphs are well illustrated. The individual parts have good consistency and interconnectedness.

The study includes 125 patients, 30 of them have chronic viral hepatitis B, 30 have chronic viral hepatitis C and 30 of them are with liver cirrhosis with viral etiology. The control group includes 35 healthy volunteers. The inclusion and exclusion criteria for the three groups of subjects are indicated. Standard abdominal ultrasound and Point Shear Wave elastography were performed. They were compared with histopathological results from liver biopsy.

The results are objective, very well illustrated and interpreted.

Modern statistical methods are applied.

The bibliography covers 129 literature sources, mostly (125) in Latin alphabet. It is up-to-date and comprehensive, covering modern sources.

The author has done very well with the wide range of available literature and has focused on the rational and in-depth analysis of the data available in the literature, to bring out the unresolved issues at this stage and to motivate their own development.

The aim of the study is clearly defined. The main tasks - 6 in number correspond and are scientifically substantiated. They were completed in stages during the study.

The results are described comprehensively and correctly, so they are sufficient for the implementation of the tasks. The statistical methods used are sufficiently adequate and with good reliability analysis. The dissertation shows a very skillful ability for comparative analysis and evaluation.

In the discussion the author defines his own conclusions from the results and outlines the contribution of the dissertation in the research area, which reflects the in-depth preparation achieved in the development process.

The conclusions from one's own results, derived from extensive material, are carefully and precisely defined.

The Author's summary is presented on 68 pages, structured according to the requirements, well illustrated and fully reflects the main results achieved in the dissertation. Gives a very good, accurate and clear idea of the scientific development, conclusions and contributions of the author.

In the discussion after the results of each task, Dr. Doykova compares her data with the known literature, which shows in-depth knowledge of the problem and critical analysis.

Total 8 conclusions are based on the literature review, analysis of own results and discussion. They are precisely formulated and reflect the set tasks and the obtained results.

Main scientific and applied scientific contributions

Contributions of original character

1. The first comprehensive study to assess spleen density in chronic viral hepatitis and liver cirrhosis of viral etiology
2. Comparison between spleen stiffness and liver stiffness with histological evaluation in patients with chronic viral hepatitis and liver cirrhosis of viral etiology.
3. Establish a cut-off value for the spleen stiffness for expected decompensation of liver cirrhosis with the appearance of ascites and esophageal varices

Contributions of a confirmatory character - contribute to the enrichment of knowledge about:

1. The usefulness and reliability of pSW-elastography in the diagnostic follow-up of patients with chronic viral hepatitis with their complications.
2. pSWE of the spleen could be used as an additional method in assessing the degree of liver parenchymal damage in chronic viral hepatitis and as an additional indicator in monitoring complications of liver fibrosis such as esophageal varices and ascites.

I accept completely and without remarks the author's reference for the scientific contributions of Dr. Doykova.

Conclusion:

Katya Angelova Doykova, MD, shows a very good professional training and knowledge of the material, which allows her to make significant conclusions about scientific and clinical practice. She has possesses and can successfully and independently enforce the methods of scientific research. Skillfully uses a wide range of statistical methods. There are enough publications and scientific activity related to the dissertation.

The PhD thesis contains scientific, scientific-applied, and applied results, which represent an original contribution to science and meet all the requirements of the Law for the development of the academic staff in the Republic of Bulgaria.

Given the above, I confidently give my **positive assessment** of the conducted study, and I **propose to the esteemed members of the scientific assessment committee to award the educational and scientific degree “Doctor of Medicine”** to Katya Angelova Doykova, MD, presented to me with topic: “pSW-ELASTOGRAPHY OF THE LIVER AND SPLEEN IN THE ASSESSMENT OF LIVER STIFFNESS IN CHRONIC VIRAL HEPATITIS AND LIVER CIRRHOSIS WITH VIRAL ETIOLOGY”

15 Apr 2021
Pleven

Reviewer:
Prof. Nachko Totsev, MD, PhD