

UNIVERSITY HOSPITAL SAINT MARINA – PLEVEN

5800 Pleven, West Zone Industrialna, Bulgarian Aviation Str.

Phone: 064/805 666, 064/81 81, 064 / 806 838

Website: www.svmarina.com

E-mail: info@svmarina.com

REVIEW

from

Prof. Nachko Iliev Totsev, MD, PhD, Head of the Department of Imaging Diagnostics and Radiation Therapy, Medical University - Pleven

Appointed to prepare a review by order No. 109-107/09.03.2022 of the Rector of Medical University - Varna

CONCERNING: dissertation for the award of the educational and scientific degree "Doctor" to **Samer Ala Hasun El Shemeri, MD** with a title:

Quantitative measurement of epicardial adipose tissue and correlation with other markers for increased cardiovascular and metabolic risk in patients with long-term diabetes mellitus type 1

Faculty of Medicine, Medical University - Varna

Clinic of Imaging Diagnostics, University Hospital Saint Marina - Varna

Department of Imaging, Interventional Radiology and Radiotherapy

field of higher education: 7. Healthcare and Sport,

professional field: 7.1. Medicine,

doctoral program: Medical Radiology and Roentgenology (incl. use of radioactive isotopes)

FORM OF DOCTORAL STUDY: independent candidate

Research supervisor: Prof. Boyan Balev, MD, PhD.

I received all the necessary hardcopy and electronic documents on time. I have no conflict of interest and did not find any evidence of plagiarism.

Regarding the candidacy of: Samer Ala Hasun El Shemeri, MD

Samer Ala Hasun El Shemeri, MD was born on January 28, 1990 in Burgas. She earned a master's degree in Medicine in 2015 at the Medical University of Varna. From 2017 to 2021 she was a resident physician at the St. Marina University Hospital - Varna. From 2021 on she has been a radiologist at the St. Marina University Hospital - Varna. From 2017 on she has been an Assistant Professor at the Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy at the Medical University - Varna. From 2020 on she has been a PhD student in Imaging Diagnostics. As of June 1, 2021 she is a recognized Specialist in Imaging Diagnostics.

Fluent in English and German.

A member of the following professional associations and scientific organizations:

Bulgarian Association of Radiology (BAR)

European Society of Radiology (ESR)

Bulgarian Medical Association (BMA)

Assessment of the dissertation:

Samer Shemeri's scientific interest is related to the assessment of epicardial adipose tissue as a risk factor for the development of cardiovascular and metabolic risk.

The dissertation has 119 pages and is illustrated with 17 figures, 29 tables and 27 diagrams. The literary review is structured in a monographic style. The bibliography is complete and up-to-date, including a total of 260 titles, of which 5 are Cyrillic and 255 in Latin.

The topic of the dissertation: **Quantitative measurement of epicardial adipose tissue and correlation with other markers for increased cardiovascular and metabolic risk in patients with long-term diabetes mellitus type 1** is relevant for our country due to non-invasive methodology and ability to evaluate epicardial adipose tissue as a risk factor for development of cardiovascular and metabolic risk. It presents a modernized non-invasive approach to a more conservative and non-aggressive method in the simultaneous evaluation of epicardial adipose tissue and calcium score and their clinical significance for the occurrence of coronary atherosclerotic disease in patients with diabetes. This is the first study in Bulgaria to perform simultaneously CT and MRI and create and use an algorithm for semi-automatic and manual segmentation of epicardial adipose tissue in patients with type

1 diabetes.

The author did very well with the review of the wide range of available literature and focused on the rational and in-depth analysis of the data available there, pointing out unresolved issues at this stage and motivating its own study.

The aim of the study is clearly defined. The main tasks in the dissertation are well formulated and meet the aim. The results of the study are described comprehensively and correctly, and thus sufficient to perform the given tasks. The statistical methods used are sufficiently adequate and have good reliability analysis. The author of the dissertation shows a very skillful ability for comparative analysis and evaluation.

In the discussion the author defines her own conclusions from the results and outlines the dissertation's contribution in the researched area. This reflects the in-depth preparation achieved in the development of the study.

The conclusions from the results are carefully and precisely defined, derived from the extensive material.

The author has made 7 accurate and clear conclusions from her own research. She has analyzed the limitations and shortcomings of classical methods for epicardial adipose tissue imaging critically and responsibly.

I indisputably accept the formulated 5 scientific-applied contributions of the dissertation.

The **thesis summary** is structured according to the requirements, well illustrated and fully reflects the main results achieved in the dissertation. It gives a very good, accurate and clear idea of author's scientific development, conclusions and contributions.

The dissertation is written in a clear, concise style. The tables and graphs visualize and describe the data well. The individual parts are consistent and well interconnected.

Based on the impact factor report made by the Library of Medical University – Varna for the publications' journals, Samar El Shemeri has three full-text publications in IF journals with a total IF of 41.414

In connection with the dissertation, the author has published 3 full-text publications indexed in Web of Science/Scopus, 5 non-indexed full-text publications and 1 indexed abstract.

In conclusion:

Samer Ala Hasun El Shemeri, MD presented a completed scientific work on a topical issue: a non-invasive method for assessing epicardial adipose tissue as a risk factor for cardiovascular and metabolic risk in patients with diabetes mellitus type 1 diabetes.

This dissertation summarizes the results from native and contrast scanning and magnetic resonance imaging for the assessment of epicardial adipose tissue.

Magnetic resonance imaging has a number of advantages, including the absence of ionizing radiation and invasiveness.

The is very well acquainted with the state of the problem, not only theoretically, but also as an established specialist in Imaging Diagnostics, which allows her for targeted practical application of the results. The dissertation has an analytical approach to the evaluation of literary data.

The author has mastered and can successfully and independently apply the methods of scientific research. She uses skillfully a wide range of statistical methods. She demonstrates very good professional training and mastery of the material, which allows her to draw significant conclusions for scientific and clinical practice. She has a sufficient number of publications and scientific activity related to the dissertation.

The dissertation fully meets the requirements of the Law and the Regulations for Awarding the Educational and Scientific Degree "Doctor".

This gives me reason, with full conviction **to vote positively** and to propose to the esteemed members of the Scientific Jury, determined by order of the Rector of Medical University - Varna, to vote in favor of awarding the scientific and educational degree "Doctor" to Samer Ala Hasun El Shameri, MD for the presented dissertation: **Quantitative measurement of epicardial adipose tissue and correlation with other markers for increased cardiovascular and metabolic risk in patients with long-term diabetes mellitus type 1**

08.04.2022
Pleven

Reviewer:.....
(Prof Nachko Iliev Totsev, MD, PhD)