

OPINION

From: Assoc. Prof. Stanimir Sirakov, MD, PhD

Faculty of Medicine, Medical University of Sofia, University Hospital St. Ivan Rilski, Sofia

Member of Scientific Jury, appointed by decree № P 109-107, 09.03.2022

Regarding: Dissertation for obtaining the educational and scientific degree “Doctor” in the field of higher education 7. Healthcare and Sports, professional division 7.1 Medicine, scientific specialty “Medical radiology and X-ray treatment (including use of radioactive isotopes), written by **Dr. Samar Ala Hasun El Shemeri**, regular doctoral student at the Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy, with a research supervisor Prof. Boyan Balev, MD, PhD and Scientific Jury, appointed by decree № P 109-107, 09.03.2022.

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

Biographical data: Dr. Samar Ala Hasun El Shemeri graduated from the Medical University of Varna in 2015. She started working as a resident at the Clinic of Imaging Diagnostics, Interventional Radiology and Radiotherapy at University Hospital St. Marina, Varna in 2015. In 2017 she was appointed Assistant Professor at the Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy at Medical University of Varna, and in 2021 acquired a diploma for the medical specialty Imaging Diagnostics. In 2020 she became a regular doctoral student at the same department with a dissertation 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. Dr Samar Ala Hasun El Shemeri participated actively in the organization of the Imaging Diagnostics National Congress in 2019 in Varna and is a mentor and academic supervisor of medical students in the Student Practices program of the Ministry of Science and Education. Her colleagues point out that she shows a high level of professionalism, erudition and humane treatment of patients in the performance of her official duties.

The **dissertation** is properly structured and consists of 120 pages.

Introduction: 2 pages, Literature Review: 18 pages, Aim and Tasks: 1 page, Materials and Methods: 13 pages, Results: 30 pages, Discussion: 8 pages, Conclusion: 1 page, Contributions: 1 page, Bibliography: 28 pages.

Dr. Samar Ala Hasun El Shemeri has participated in the national project: “Cardiovascular and metabolic risk, associated with visceral adipose tissue in patients with diabetes mellitus type 1”.

The **Thesis summary** reflects the essence of the dissertation and is structured according to the requirements.

In the **Literature Review** the candidate studies comprehensively available data in literature. There are a limited number of publications on the topic in Bulgarian sources. Special attention is paid to assessment and correlation between imaging studies and actual clinical risk for patients.

In **Materials and Methods** 183 participants are included in the study, from which 124 are with at least 15 years diabetes type 1 duration, and 59 clinically healthy patients (without known cardiovascular and metabolic diseases), presented as controls. The period of study is from June 2018 to December 2021. The methods are described clearly and in detail, the software used for statistical processing is IBM SPSS v.25.

In the **Results** section Dr. El Shemeri describes in detail the obtained data regarding the seven appointed tasks. A significant correlation is established between two imaging methods (CT and MRI) for measuring EAT quantity. A statistically strong correlation is established between waist circumference and EAT quantity and studied cytokines (IL-6, IL-1, TNF) in the diabetics group. A strong correlation is established between increased EAT and PAT in T1DM patients. A statistically significant correlation is established between EAT quantity, BMI and lipid profile in both groups. Dr. El Shemeri established that increased EAT amount could be adopted as risk factor for development of cardiovascular diseases in both diabetics and healthy patients.

In **Conclusions** we have 7 conclusions, adequately reflecting the aim and tasks.

The **Contributions** are of scientifically-theoretical, confirmatory and applied nature. The most significant contribution is the first algorithm for semi-automatic and manual EAT segmentation, measured by CT and MRI in Bulgaria, confirming that the CT-measured heart could be adopted as a gold standard in simultaneously measuring EAT and calcium score.

Conclusion:

The dissertation meets fully all requirements for awarding the educational and scientific degree “Doctor” according to the Law on the Development of the Academic Staff. I recommend to the respected Jury to award the educational and scientific degree “Doctor” to Dr. Samar Ala Hasun El Shemeri.

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