

Statement of opinion

from **Prof. Dr. Aneliya Klisarova, MD, PhD, DSc**
Head of Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy
Faculty of Medicine
Medical University “Prof. Dr. Paraskev Stoyanov” - Varna

for dissertation thesis for obtaining the educational and scientific degree
“Philosophy 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. Summer Ala Hasun El Shemeri,
Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy
Faculty of Medicine
Medical University “Prof. Dr. Paraskev Stoyanov” - Varna

Title of the dissertation thesis:

***Quantitative measurement of the epicardial adipose tissue and correlation
with other markers of increased cardiovascular and metabolic risk in patients
with long-term Diabetes Mellitus Type 1***

Dear members of the scientific jury,

By Order № R-109-107 from 09.03.2022 of the Rector of the Medical University of Varna and as a member of the Scientific Jury by Decision of the Scientific Jury in accordance with Protocol №1 from 17.03.2022, I was selected to participate with a statement of opinion regarding the defense of the PhD thesis of Dr. El Shemeri.

1. Significance of the problem and formulation of the purpose and tasks:

The topicality and the significance of the problem are determined by the great socioeconomic importance of the metabolic syndrome in patients with obesity and diabetes mellitus. The early detection and the appropriate treatment of the syndrome plays a major role in the prevention of cardiovascular diseases and diabetes mellitus. Due to its increasing incidence caused by the sedentary lifestyle and the deleterious nutrition habits, the metabolic

syndrome leads to obesity which turns into a main risk factor for morbidity and mortality from cardiovascular diseases.

The purpose of the dissertation work is formulated clearly and is aimed at determining the role of the imaging assessment of the epicardial adipose tissue and its role as a biomarker along with its clinical significance as a factor for increased cardiovascular risk in correlation with other known risk factors. The tasks set by the candidate are 7. They are formulated correctly and correspond to the purpose of the study.

2. Dissertation structure:

The dissertation thesis follows the classical structure. It covers 119 pages and contains the following chapters: literature review, objective and tasks, material and methods, results and discussion, conclusions, contributions and a CV. The thesis contains 29 tables, 27 graphs and is illustrated with 17 figures.

The proportions between the different chapters are observed. I would like to emphasize the fact that every chapter of the dissertation paper follows the logic of the set tasks and objective and the conclusions follow naturally from own results, the statistical data processing and the discussions.

3. Literary awareness of the candidate:

The literary review of the dissertation thesis covers 22 pages in which the author makes a thorough analysis of the state-of-art methods for epicardial adipose tissue assessment. The review includes 260 literary sources, of which 5 in Cyrillic. The candidate proves that summarized and systematized data are still lacking for the application of different assessment methods for the epicardial adipose tissue. The conclusions from the literary review are concrete and are directly linked to the purpose and the tasks of the scientific work.

4. Methodological level and design of the scientific research:

The scientific study includes a total of 183 participants, of whom 124 persons with at least 15-year-long Type 1 Diabetes Mellitus and 59 healthy controls without known cardiovascular and metabolic diseases, distributed according to gender, age and body mass index.

The results are processed by means of statistical methods, the specialized statistical set being SPSS – version 25.

The methods of investigation and the clinical material selected by the author have allowed her to achieve the set goal and the formulated tasks for solving have obtained an adequate answer.

5. Correspondence between the purpose, results and conclusions:

There is a logical correspondence between the goal set, the results obtained, the discussion and the conclusions drawn. The author's own results and the discussion are presented on 34 pages and are illustrated with tables, figures and statistical analysis. They follow the course of the set tasks and are presented in detail. The importance, the advantages and the drawbacks of each of the used methods are also examined. The presented data demonstrate the rigorous and thorough analysis made by the candidate in the application of the different methods (CT, NMR, 3D Slicer segmentation, DEXA – Dual-energy X-ray absorptiometry).

6. Analysis of the conclusions and the contributions:

The dissertation thesis ends with 7 conclusions and 5 contributions. I accept the contributions according to the author's self-assessment and I would like to point out that the dissertation work is the first study in our country on the assessment of the epicardial adipose tissue as a risk factor for the development of cardiovascular and metabolic risk. For the first time in Bulgaria, an algorithm is worked out for semi-automatic and manual segmentation of the epicardial adipose tissue investigated with CT and NMR.

7. Nature of the critical remarks and recommendations:

I have no critical remarks to make, which could possibly question the methods, the evidence material, the discussion of the obtained results and the drawn conclusions.

8. Publications and participation in scientific events:

The results from the scientific study obtained by the author on the dissertation topic have been announced in 3 peer-reviewed full-text publications, 4 non-indexed full-text publications and 1 indexed abstract publication. The candidate's total impact factor is 41.414 according to data from the Medical University of Varna. The dissertation has been developed by Dr. El Shemeri within a research project entitled "Cardiovascular and metabolic risk associated with the visceral adipose tissue in patients with Type 1 Diabetes Mellitus. The research was financed by the "Scientific Research" Fund at the Ministry of Education and Science.

Personal impressions from the candidate:

Dr. Summer Ala Hasun El Shemeri is an established specialist in imaging diagnostics. She is one of those young colleagues who improve constantly and show interest not only in her everyday work but also in the novelties in her field. She is dedicated and kind to her patients, loyal and responsible not only to the team of the Clinic of Imaging Diagnostics, the Department of Imaging Diagnostics, Interventional Radiology and Radiotherapy at the medical University of Varna but to her colleagues from other clinical specialties. Devoted to her scientific interests, she is a promising scientist and professional.

9. Conclusion:

Having in mind the scientific merits of the dissertation thesis, namely the topicality of the problem and the obtained results, the significant conclusions and contributions of the candidate, I firmly recommend to the members of the respected scientific jury to confer the educational and scientific degree “Philosophy Doctor” to Dr. Summer Ala Hasun El Shemeri for her dissertation work entitled “*Quantitative measurement of the epicardial adipose tissue and correlation with other markers of increased cardiovascular and metabolic risk in patients with long-term Diabetes Mellitus Type 1*”.

29.03.2022

Varna



Prof. Dr. Aneliya Klisarova, MD, PhD, DSc