

To the Chairman
of the Scientific Jury

OPINION

by Prof. Dr. Adelaida Lazarova Ruseva, MD

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external member of the scientific jury for the defense of the dissertation work for the
acquisition of the educational and scientific degree "doctor" on the basis of order No. R-109-
159/ 24.02.2023 r. of the Rector of the Medical University, Varna, on the topic:

"Role of vitamin D and vitamin B12 in pregnant women and newborns",

developed by Dr. Monika T. Todorova,

physician at ACC, Varna Medical Center

Brief introduction of the candidate:

Dr. M. Todorova graduated in 2004 at Varna University of Medical Sciences, majoring in
Medicine. She has a recognized specializations in Clinical Laboratory and Health
Management. Since the beginning of 2019, she has been a full-time doctoral student. She
currently works as a specialist in the Clinical Laboratory at the ACC of Varna Medical
Center.

Relevance of the topic of the dissertation:

In the world literature, more and more data are accumulating on the prevalence of
insufficiency and deficiency of vitamins D and B12 among different target groups.
It focuses on the adverse health effects and complications of pregnancy with important
implications for the health of both mother and child. Numerous scientific studies and
publications discuss the so-called "non-classical" functions of vitamin D and prove the link

between its deficiency and a number of diseases. Despite the accumulated literature on the increasing incidence of vitamin B12 deficiency or insufficiency, it remains underestimated, especially in pregnant women and their newborns.

Structure of the dissertation:

The dissertation is presented on 187 pages with an optimal ratio between the individual parts, contains 59 tables and 34 figures. The bibliography includes 350 titles. The literature review is presented in a volume of 50 pages and ends with a summary confirming the relevance of the problem under consideration.

The purpose of the dissertation work is clearly formulated: To determine the vitamin D and vitamin B12 status of pregnant women with normal and pathological pregnancy and to evaluate the role of their deficiency and/or insufficiency for the course of pregnancy and its outcome. It is a logical consequence of the problems discussed in the literature review and is achievable through the described 3 main large-scale tasks.

In the Material and Methods section, the exceptional precision with which the analytical procedures for quantitative analysis are described, including the procedures for validating the methods for measuring 25(OH)D and MMA, makes an impression.

The obtained results of the dissertation work are included in three large sections:

1. Clinical and laboratory characteristics of the examined persons
2. Vitamin D status of pregnant women, including its influence on the adverse outcome of pregnancy in relation to the newborn.
3. Vitamin B12 status of pregnant women, including its influence on the adverse outcome of the pregnancy in relation to the newborn.

The results are discussed and summarized in three groups of conclusions, related respectively to: pregnancy and risk factors for the occurrence of adverse complications; vitamin D status and pregnant women; vitamin B12 status and pregnant women. A total of 19 specific conclusions are logically formulated. The large number of conclusions made corresponds to the ambitious goal set, not only to determine the levels of two of the most important vitamins – D and B12, but also to evaluate the role of deficiency and/or their insufficiency for the course of normal or pathological pregnancy and its exit.

Based on the achieved results, the PhD student has formulated 5 contributions of an original nature and 6 – of an applied nature. The results of the study may be a basis for changing the standard of monitoring during pregnancy by adding laboratory tests to determine the levels of vitamins D and B12.

In connection with the dissertation work, the doctoral student presents 3 full-text publications in scientific journals, in all of which she is the first author, as well as 6 participations in conferences and scientific meetings.

Conclusion:

Dr. Monika Todorova's dissertation is up-to-date, well structured and contains important contributions. I firmly believe that with this work, Dr. Todorova proves that she possesses the necessary qualities to acquire the degree "doctor". This gives me the reason to give a POSITIVE opinion on the dissertation work on the topic: "Role of vitamin D and vitamin B12 in pregnant women and newborns" for awarding the educational and scientific degree "Doctor" in the scientific specialty "Clinical Laboratory".

March 29, 2023

Prof. Dr. A. Ruseva

