

OPINION

From

Prof. Dr. Veselka Duleva, MD

Head of the Food and Nutrition Department

National Center for Public Health and Analysis

ABOUT: dissertation on the topic " Micronutrient Supplementation in Type II Diabetes Patients Treated with Metformin " for awarding the educational and scientific degree Philosophy Doctor in the field of higher education 7. Health and sports, professional field 7.1. Medicine, scientific specialty "Hygiene" /labor, communal, school, radiation, etc./", to Dr. Ivan Georgiev Enev, doctoral student at the Medical University - Varna.

By Order No. R-109-171/28.03.2025 of the Rector of the Medical University - Varna and on the basis of Protocol No. 1/10.04.2025, I am appointed as a member of the Scientific Jury for the preparation of an opinion on the dissertation work on the topic " Micronutrient Supplementation in Type II Diabetes Patients Treated with Metformin " for the award of the scientific and educational degree Philosophy Doctor in the field of higher education 7. Health and sports, professional field 7.1. Medicine, scientific specialty "Hygiene" /labor, communal, school, radiation, etc./" to Dr. Ivan Georgiev Enev, PhD student at the Medical University - Varna.

Dr. Ivan Georgiev Enev has been a full-time doctoral student since 2020 at the Medical University of Varna with scientific supervisor Prof. Darina Naydenova Hristova, MD. He has been enrolled with the right to defend his thesis.

Dr. Enev graduated from the Higher Medical Institute in Sofia in 1992. From 1992 to 2000, he was a pediatrician at the District Hospital in Vratsa. From 2000 to 2020, he was a general practitioner and pediatrician at the ET Doctor Ivan Enev. From 1997 to 2011, he was a lecturer in clinical homeopathy after training at CEDH- France, Center for Training and Development of Homeopathy, Bulgaria. From 2011 to the present, he is the coordinator of pedagogical activities at the Center for Clinical Homeopathy.

Since 1998, he has specialized in Pediatrics, and from 2002 to 2005, he specialized in General Medicine. Since 2019, Dr. Enev has been a specialist in Nutrition and Dietetics at MU-Varna, and since 2020 he has been a full-time doctoral student at MU-Varna.

He specialized in homeopathy from 1993 to 1995 at the London College of Classical Homeopathy, and from 1995 to 1999 he specialized in clinical homeopathy.

He is a member of the Bulgarian Medical Union, the National Association of General Practitioners in Bulgaria, the Bulgarian Pediatric Association, the Management Board of the National Association of Practical Dietetics and Integrative Medicine, the Chairman of the Bulgarian Medical Homeopathic Association, the Member of the Management Board of the Association of General Practitioners in Vratsa, and the Member of the Management Board of the Association of Homeopathic Physicians in Bulgaria.

He speaks Russian, French and English.

The topic of the dissertation submitted for opinion is "Micronutrient supplementation in patients with type II diabetes treated with metformin" is relevant and practically significant.

Diabetes mellitus (DM) is a metabolic disease of social significance, with about 9% of the population, or about 500,000 patients, suffering from diabetes in Bulgaria. The vast majority of them (about 90%) have type 2 diabetes. Studies have found a link between inadequate vitamin intake, glycemic control and the progression of type 2 diabetes. The nutritional status of patients with type 2 diabetes and the levels of fat- and water-soluble vitamins are unstudied. Metformin remains the "gold standard" as the first choice for mono- and combination therapy, incl. with insulin, in patients with T2DM. Chronic treatment with metformin can induce vitamin B12 and folic acid deficiency. A number of other deficiencies have also been described in type 2 diabetes mellitus.

micronutrients – vitamin D, magnesium, vitamin K, which influence the metabolic control of the disease. In Bulgaria, there are no targeted and comprehensive studies on the micronutrient status in type 2 diabetes and chronic

disease, especially in recent years. Replacing the deficiency of necessary micronutrients remains outside the consensus for the treatment of T2DM. The world literature data on the frequency of a number of micronutrient deficiencies, especially in the group of patients undergoing treatment with metformin, are contradictory, and in Bulgaria such systematic studies are lacking. Currently, there is no generally accepted model of supplementation in patients with T2DM worldwide - neither in terms of the search for and diagnosis of possible micronutrient deficiencies, nor in terms of the type of supplementation - whether it should be with monocomponent or polycomponent ingredients.

The dissertation contains 163 pages and is illustrated with 30 tables, 15 figures and 9 appendices.

The bibliographic reference includes 315 sources, of which 4 are in Cyrillic and 311 in Latin.

There are 3 publications related to the dissertation work, and 4 participations in national forums have been presented.

The literature review shows a good command of the problem and the material by Dr. Ivan Georgiev Enev, the issues in the field are presented comprehensively and competently and justify the choice of methods used in the scientific and methodological developments of the dissertation.

The main goal of the dissertation work has been adequately defined – to establish the micronutrient status of outpatients with type 2 diabetes receiving metformin as monotherapy, to reveal the characteristics of their dietary habits and the need for supplementation.

The formulated 7 tasks make it possible to achieve the set goal.

The methodology of the study is presented comprehensively. The following were used: Methods: Clinical examination; Laboratory methods: Complete blood count; Nutritional status assessment; Survey method. A prospective, open-label study was conducted in the period from 20.03.2021 to 26.03.2024, covering patients diagnosed with type 2 diabetes mellitus treated with metformin and diet. The study subjects were 48 patients over the age of 18 years suffering from type 2 diabetes. The study was prospective, open (without blinding) and experimental,

without a control group (single-arm). Statistical analyses were performed with jamovi version 2.6.

The results are presented, illustrated and discussed adequately and competently. Based on the analysis of the obtained results, 10 conclusions have been formulated, which are in accordance with the tasks set.

The candidate's in-depth knowledge of the problem is evident, which allows for the formation of appropriate recommendations for patients.

The dissertation work has scientific contributions of an original nature and of a confirmatory and applied nature, which allows future activities of general practitioners and endocrinologists to be directed towards determining micronutrient deficiencies in patients with type 2 diabetes and how to correct the identified deficiencies through supplementation.

The abstract presents the main results and conclusions of the study and corresponds to the dissertation work.

In conclusion: The topic of the dissertation is relevant, scientifically based and disseminable. The main goal and tasks are formulated clearly and in accordance with the topic. The results are of an original nature and with a certain practical applicability. The contributions provide an opportunity for practical solutions to current problems in patients with type 2 diabetes on metformin treatment.

Based on the above, I express a positive assessment of the dissertation work presented to me for an opinion and I firmly believe that the scientific jury can positively evaluate the work and support the award of the educational and scientific degree "Philosophy Doctor" in the field of higher education 7. Health and Sports, professional field 7.1. Medicine, scientific specialty "Hygiene" /labor, communal, school, radiation, etc./ to Dr. Ivan Georgiev Enev, doctoral student at the Medical University - Varna.

07.05.2025

Prof. Dr. Veselka Duleva, MD:.....

Заличено на основание чл. 5, §1, б. „В“ от Регламент (ЕС) 2016/679
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