

## OPINION

from

Prof. Raina Teodosieva Robeva

Head of the Clinic of Nephrology at the Military Medical Academy, Sofia

under the procedure for obtaining the educational and scientific degree "Doctor" in the scientific specialty "Nephrology" of Dr. Diana Dimcheva Nenova, according to the order of the Rector of MU - Varna-R-109-105 / 09.03.2022 and Protocol of the FS № 61 / 01.03.2022 with dissertation on the topic: "Adequacy of dialysis treatment and the relationship with the achieved quality of life and survival in patients with chronic kidney disease stage V"

The presented materials on the procedure meet the requirements of the Law for the development of the academic staff of the Republic of Bulgaria and the Regulations for the development of the academic staff of MU - Varna for awarding the scientific degree "Doctor".

Dr. Diana Dimcheva Nenova graduated from high school in 2006 at the High School "St. St. Cyril and St. Methodius" Karnobat. In 2012 she obtained a master's degree in Medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" in Varna. Since 2013 she has been working as an intern at the Clinic on dialysis of UMHAT "St. Marina" – Varna. In 2017 she was hired as part-time, and then in 2018 as full-time assistant in nephrology at the Second Department of Internal Medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" Varna. In 2018 she successfully acquired a degree in Nephrology.

Dr. Nenova has published in Bulgarian publications and presented papers and posters at Bulgarian scientific forums. She is a member of the Bulgarian Nephrological Society and BMA. She speaks English, has good communication and presentation skills, as well as the ability to work effectively in a team. Works freely with various software products.

The dissertation of Dr. Diana Nenova examines a topical issue of great practical importance in the field of nephrology - studies the adequacy of dialysis treatment and the relationship with the achieved quality of life and survival. accepts that 10-12% of the population is affected by it. In this regard, the prevalence of maintenance hemodialysis continues to grow. There is a significant improvement in the equipment for this procedure, which, however, is insufficient to improve quality of life and survival. There are data showing the relationship between dialysis adequacy, clinical manifestations and survival, which requires more in-depth study of this problem in attempt to optimize the result.

The dissertation is written on 200 pages. It is illustrated with 43 figures, 24 tables and one appendix using 379 literature sources - 10 in Cyrillic and 369 in Latin.

Dr. Nenova has made an in-depth review, presented basic data from the medical literature, which shows a good knowledge of the problem, the ability to systematize information and to bring out the most important problems.

The aim of the dissertation is short and clear. The doctoral student sets nine tasks for her performance. 100 persons were studied, of which: 87 patients to study the influence of vascular access on the indicators of adequacy, nutritional status and anemic syndrome; 41 patients to study the effect of applied convective therapies on the received dialysis dose, nutritional status and anemic syndrome; 32 patients to study the relationship between the adequacy indicators calculated by urea-kinetic modeling and the results obtained in online monitoring; 50 patients for prospective assessment of the achieved individual quality of life.

In her study, Dr. Nenova found that ionic dialysis is a new non-invasive tool for daily use with high correlation and predictive value in relation to the classic indicators of dialysis adequacy, which allows cheap



assessment of the delivered dialysis dose in real time without the need for blood tests. Despite conflicting opinions in the literature on high dialysis dose and its impact on clinical outcome, the dissertation found that the latter leads to a significant improvement in nutritional status, anemic syndrome and quality of life in patients, its lasting effect manifests itself in the third year of intensification. therapy. The beneficial effect of high dialysis dose on nutritional status is undisputed in young and middle-aged patients, but is unsatisfactory for elderly patients with age-related weight loss and malnutrition in high comorbidity. High-dose dialysis therapy is associated with improved survival, reduced risk of death and a significant increase in life expectancy compared to other groups, while the critical period for stabilization and survival is significantly shorter. In the conditions of the non-standardized high dialysis dose, achieved through conventional or convective therapies, the nutritional indices have a stronger predictive value for poor results, and in online hemodiafiltration the serum albumin is of special importance due to its pronounced loss during the procedure. It shows that arteriovenous fistula significantly outperforms other types of vascular access in terms of dialysis dose and control of anemic syndrome, achieved survival with reduced risk of death at significantly lower incidence of complications and related hospitalizations. Online hemodiafiltration after dilution provides significantly higher values of delivered dialysis dose and nutritional status, better control of the anemic syndrome with stable hemodynamics and shortened recovery time. The main measure of dose and high efficiency of online hemodiafiltration is the use of convective volume over 20 l per session. At volumes lower than the indicated value, the clinical effect is comparable to that of conventional dialysis. The high volume is not a universal dose for every patient, which is evidenced by the correlations derived after its adaptation to the individual. In elderly patients, high convective volumes are associated with hemodynamic instability, prolonged recovery time and poor nutritional status with significantly lower serum albumin values compared to the same age group performing conventional dialysis, which requires strict refinement of the regimens. treatment. Online hemodiafiltration is associated with better survival than hemodialysis.

Based on an analysis of the available literature, reflecting the specifics and significance of the problem, as well as the results of this study, Dr. Nenova develops an original diagnostic and therapeutic algorithm for dialysis treatment to improve clinical outcome, survival and quality of life in patients with chronic stage V kidney disease.

The results of the work confirm the hypothesis that the obtained high non-standardized dialysis dose (through conventional or convective therapies) leads to improved clinical outcome, survival and quality of life, and that ionic dialysis provides a reliable assessment of the delivered dialysis dose at high benefit. patient.

There are 11 scientific contributions - 7 of a theoretical nature and 4 of a practical and applied nature.

The dissertation student encloses a list of 4 publications related to the dissertation. The attached list meets the requirements for acquiring ONS "Doctor".

The abstract is well designed and illustrated, reflects the essence of the work.

In conclusion, the dissertation of Dr. Nenova is a current scientific work of great practical importance. Based on the presentation, I believe that the presented work meets the requirements of the law for the development of the scientific staff and Dr. Diana Dimcheva Nenova can be awarded the educational and scientific degree "Doctor".



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