R E V I E W
from

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Regarding the awarding of the educational and scientific degree "doctor"
for
Dr. Kiril Zhivkov Zhelyazkov

Dissertation on the topic: " COVID -19 in patients with end-stage renal failure - complications, risk factors and mortality ."

Biographical data and career development:

Dr. Kiril Zhivkov Zhelyazkov graduated from the Medical University of Varna, Faculty of Medicine in 2016. In the same year, he was appointed as a resident physician at the Clinic of Nephrology, Dialysis and Toxicology of the University Hospital "St. Marina", Varna, where he continues to work. In 2022, he acquired the specialty "Nephrology". Dr. Zhelyazkov holds the position of assistant physician in the same clinic. He is understands in German and English - spoken and written.

The infection caused by the new coronavirus - SARS - CoV -2 causes medical and social consequences, especially in the population of chronically ill patients. Among the most affected groups are patients with end-stage chronic kidney disease - CKD (ESRD) - renal failure. COVID -19 infection leads to serious complications in dialysis patients, which are characterized by hemodynamic instability, increased blood clotting during the dialysis procedure and outside the dialysis procedure. There is a lot of data from various sources on increased mortality among this patient population - between 20 - 30%. This allows the dissertation to determine the impact of COVID -19 on dialysis patients in our country. In his work, Dr. Zhelyaskov uses the 2012 KDIGO classification and staging of CKD . An important characteristic

of patients with chronic kidney disease, and especially patients on dialysis treatment, is their increased mortality.

The main objective of the dissertation is, through a retrospective study of COVID -19 to determine the impact of the infection on patients on hemodialysis treatment.

To achieve the set goal, the dissertation candidate sets five tasks, clearly and correctly formulated.
The study design is a retrospective observational cohort study conducted at the Nephrology and Dialysis Clinic of the University Hospital "St. Marina" Varna. The population of included patients is completely sufficient. A total of 190 patients were included - group A-101 with positive COVID -19 and group B-89 without confirmed infection during the follow-up period.
The inclusion and exclusion criteria are precisely stated. The detection of COVID - 19 was carried out using standard infection tests. The causes of death were correctly divided into four groups - COVID -19, cardiovascular disease, died of other causes, 0 - patients who remained alive at the end of the follow-up. The causes of death in men and women were correctly determined. The survival rate of patients on chronic dialysis with COVID -19 was determined depending on the vaccination status and the relative risk of mortality in patients with different dialysis adequacy was determined. The dissertation proves that the type of vascular access does not affect the indicators of dialysis adequacy either before or after recovering from COVID - 19. As a result of the studies performed, the dissertation draws the following conclusions:

CONCLUSIONS

1. The overall mortality rate in chronic hemodialysis patients is extremely high – over 50% for the entire observation period, which confirms the vulnerability of this population.

2. Although infection is a significant stress indicator, it is not established as an independent predictor of mortality.

3. Cardiovascular disease is the strongest independent predictor of fatal outcome and increases the risk of mortality fivefold.

4. Vaccination against the infection is associated with significantly lower mortality.

5. Advanced age increases the overall risk of death, but is not associated directly fatal.

6. Diabetes and gender are not established as independent predictors of mortality.

7. Lower dialysis adequacy is associated with more complications and higher mortality.

8. The indwelling hemodialysis catheter and AV fistula did not show significant differences in dialysis adequacy.

The dissertation work of Dr. Kiril Zhivkov Zhelyazkov meets all the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for its implementation and the Regulations of MU - Varna. It contains scientific and scientifically applied results, important for clinical practice. The dissertation work shows that the doctoral student possesses in-depth theoretical and practical knowledge and proven professional skills in the scientific specialty of nephrology, demonstrating the qualities for independent conduct of scientific research. In view of the above, I give my positive assessment of the dissertation work of Dr. Kiril Zhivkov Zhelyazkov and propose to the esteemed scientific jury to award the educational and scientific degree "Doctor" to Dr. Kiril Zhivkov Zhelyazkov for a doctoral program in nephrology.

30.01.2026

Prof. Emil Paskalev, MD

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