

# REVIEW

**Assoc. Prof. Dr. Kiril Svetoslavov Nenov, Ph.D.**

**of the dissertation for scientific degree  
"Doctor"  
of Dr. Petar Plamenov Petrov**

**TOPIC: MONITORING AND EVALUATION OF NUTRITIONAL STATUS AND  
MARKERS OF THE INFLAMMATORY PROCESS IN PATIENTS WITH CHRONIC  
KIDNEY DISEASE**

**Scientific adviser: Prof. Dr. Svetla Vasileva Staykova, Ph.D, DSc**

**Scientific consultant: Assoc. Prof. Dr. Lili Ivanova Slavcheva - Grudeva, Ph.D.**

On 31.12.2021 by order of the Rector of Medical university "Prof. P. Stoyanov " Varna № P-109-596, I have been elected as a Chairman of the Scientific Jury, voted by the Faculty of Medicine (Protocol №57 / 21.12.2021)

The aim of the jury is to acquire the degree "Doctor" in the field of higher education

7.0 Health and Sports

7.1 Medicine and specialty "Nephrology"

After discussion, the dissertation is aimed at the defense of the department Council of the Second Department of Internal Medicine of Medical university "Prof. P. Stoyanov " Varna.

## **BIOGRAPHICAL DATA of Dr. Petar Plamenov Petrov:**

He graduated medicine at of Medical university "Prof. P. Stoyanov " Varna 6 years ago. Immediately after that he started working as a nephrologist at the University Hospital "St. Marina" EAD, Varna. Acquired a degree in Nephrology in 2020. From 2017 is an assistant at Medical university " Prof. P. Stoyanov ", Varna. Teaches 5th and 6th year students at medicine. There are advanced training courses:

- Echoscropy of abdominal organs;
- Percutaneous needle biopsy of the kidney.

Speaks German and English.

## **Analysis of the dissertation:**

The dissertation contains 149 standard pages and is illustrated with 42 figures, 6 tables and 3 appendices. The literature review includes 183 sources (2 in Cyrillic and 81 in Latin). The scientific works are mainly the last 4 years. The review examines in detail the changes in CKD, biomarkers in terms of kidney structure, epidemiology, renal

impairment, as a cause of CKD progression. New methods of diagnosis and treatment of chronic kidney disease, as well as quality of life in patients with chronic dialysis are also considered.

After a thorough and critical analysis of the literature and highlighting the unresolved issues on the topic was determined.

**PURPOSE** of the dissertation:

To establish a correlation between the non-invasive biomarker (Visfatin) and the nutritional status. The prognostic value of the biomarker in inflammatory process and CKD is monitored.

The selected topic is current. In recent years, there has been an increase in CKD and faster progression to end-stage renal disease, leading to permanent disability. Several biomarkers are used for diagnostic and prognostic significance in patients with CKD (pre-dialysis and dialysis). Currently, Visfatin is the most commonly used. It is nicotinamide and phosphoribosyltransferase. It is secreted by active monocytes, lymphocytes and neutrophils. Induces the expression of inflammatory mediators on endothelial cells. Many authors define it as a marker of endothelial dysfunction.

In order to achieve the goal of the dissertation, 5 main tasks have been formulated and completed:

1. To characterize the modern non-invasive biomarker Visfatin, related to the inflammatory process and its diagnostic value;
2. To evaluate the practical significance of the modern non-invasive biomarker Visfatin, sensitive to the inflammatory process;
3. To look for a correlation between Visfatin with the nutritional status of patients with chronic kidney disease;
4. To compare the levels of the new non-invasive biomarker with indicators characterizing the inflammatory process in patients with CKD;
5. To monitor changes in individual quality of life, depending on nutritional status and the accompanying inflammatory process.

A total of 80 patients with CKD were studied: 30 patients on chronic hemodialysis treatment and 50 patients treated at the Clinic of Nephrology at the University Hospital "St. Marina" EAD-Varna. The clinical condition and indicators of laboratory tests were monitored. Inclusion and exclusion criteria are defined.

Laboratory data used in scientific work are described in detail. In addition to routine parameters, Visfatin was examined and a questionnaire of 36 questions determining the quality of life of patients with CKD was completed by each patient. The attached 7 statistical methods confirm the reliability of the results.

The results in various aspects of the set goals and objectives have been developed and analyzed in detail. The discussion compared the data obtained from the 80 patients studied with those from the literature review.

The dissertation found a significantly increased concentration of Visfatin in patients with chronic kidney disease. There was a significant difference in patients from the pre-dialysis and dialysis groups at the levels of the Visfatin study. Dr. Petrov recorded low serum iron levels at higher Visfatin levels. The two markers CRP and Visfatin correlated inversely in dialysis patients.

Quality of life has been studied in patients on end stage renal disease. In patients with sensitive fatigue, Visfatin levels are significantly elevated.

After discussing the results obtained, the dissertation establishes five main conclusions. Visfatin is considered to be the main non-invasive marker of inflammation in dialysis patients. Significantly lower levels are found in them. No correlation was found between nutritional status and Visfatin levels. Low levels of the marker are more significant in patients on longer dialysis treatment. Low levels of Visfatin have been reported in patients with poorer quality of life and poor health.

The author formulates three contributions of a theoretical nature, the main of which is the establishment of Visfatin as a new non-invasive biomarker in patients at different stages of CKD (for the first time in Bulgaria). The application of the non-invasive biomarker in the Clinic of Nephrology at the University Hospital "St. Marina" EAD-Varna is one of the practical applications.

### IN CONCLUSION

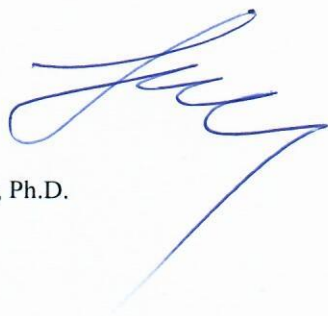
The dissertation is of practical and theoretical significance. The established scientific contributions are for the first time in Bulgaria: Visfatin, as a new non-invasive biomarker in patients with different stages of CKD. For the first time in Bulgaria its values are compared with other biomarkers. Scientific work clarifies the role of Visfatin in the diagnosis of the inflammatory process. Quality of life in dialysis patients was assessed after administration of non-invasive biomarkers.

Dr. Petar Petrov has three publications related to the dissertation.

The dissertation is written in clear and precise language in a good scientific style.

### CONCLUSION

**ON THE BASIS OF THE DATA, I ACCEPT THAT THE DISSERTATION WORK OF DR. PETAR PETROV MEETS ALL THE REQUIREMENTS FOR THE AWARD OF DEGREE "DOCTOR". I VOTE POSITIVELY and I PROPOSE THE OTHER MEMBERS OF THE SCIENTIFIC JURY TO VOTE ALSO POSITIVE.**



Assoc. Prof. Dr. Kiril Nenov, Ph.D.

01.02.2022r.