

## **STATEMENT**

Of a PhD work with a topic:

### **"ACUTE CORONARY SYNDROME IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE"**

For the acquisition of an educational and scientific degree "Doctor of Philosophy" by field of higher education 7: "Health and sport", professional field 7.1 "Medicine" and specialty "Cardiology".

PhD Student: Simona Nikolaeva Yankova, MD

Scientific supervisor. Assoc. prof. Dr. Atanas Angelov, MD, PhD.

Scientific consultant. Prof. Dr. Diana Petkova, MD, PhD.

Reviewer: Assoc. Prof. Dr. Maria Stoyanova Dimova, MD, Ph.D., Department of Propaedeutics of Internal Medicine, Medical University Varna

#### **1. Information about the procedure:**

By the Order of the Rector of MU - Varna, № P- 109-99/ 28.01.2025 the composition of the scientific jury for the defense of the PhD work of Dr. Simona Nikolaeva Yankova was determined. No violations have been found in the documentation submitted by the PhD student, the requirements of the Law in the Republic of Bulgaria, the Regulations for the Development of Academic Staff at the Medical University - Varna have been complied with. I have no conflict of interest caused by my participation in this scientific jury, which regulated to submit an opinion.

#### **2. Brief biographical data.**

Dr. Simona Yankova graduated High School "Neofit Rilski" in Harmanli and continues her higher education in Medical University – Varna. She graduated in 2016 with excellent achievement. Her professional path as a clinician began in the outpatient clinic, successively in the "Chaika" Medical Center, "Mladost" Medical Center, Center for urgent medical aid in the town of Dolen Chiflik. From November 2017 to the present moment she works in the Department of Cardiology at the Dobrich Hospital. For the period 2017 - 2021, Dr. Yankova is a part-time assistant at the Department of "Propedeutics of Internal Medicine", and since February 2019 is a part-time

PhD student at the "First Department of Internal Medicine" of Medical University - Varna.

### **3. Relevance and significance of the PhD work:**

Acute coronary syndrome (ACS) and chronic obstructive pulmonary disease (COPD) are diseases of great social importance, leading causes of morbidity and mortality in the modern society. Both diseases share common risk factors as the course and progression rate of one disease impacts the clinical presentation, almost always negatively, of the other disease. Overlapping clinical pictures impede timely diagnosis of the acute condition. Difficulties are also encountered in prescribing, observing and adhering to standardised therapy in methodological guidelines. This determines the relevance of the topic of the PhD work of Dr. Yankova, the set goals and objectives as those of important clinical, practical and scientific importance

### **4. Structure of the PhD work:**

The dissertation submitted for opinion is structured according to the standards of a PhD work for the degree of Doctor of Philosophy. The dissertation is written in 155 standard pages and includes: table of contents (5pages), abbreviations (2 pages), introduction (2 pages), literature review (47 pages), aim and objectives (1pp), material and methods (16pp), own results and discussion (77pages) conclusions (1pages), contributions (2pages), bibliography. The bibliographic reference contains 504 references, arranged alphabetically, 18 of which are by Bulgarian authors. Most of the cited literature sources have been published in the last 10 years. The work is illustrated with 20 tables and 43 figures.

### **5. Literature review**

The literature review is written thoroughly, analytically and shows Dr. Yankova's excellent and systematic knowledge of the epidemiology, classification and modern therapy of both diseases. Ischaemic heart disease and chronic lung disease are discussed in stages, initially from a historical perspective, and then the epidemiology of both diseases, definition, aetiology and pathogenesis, pathophysiology and overlapping risk factors are outlined. The inclusion of Bulgarian authors in the review is also noteworthy.

### **6. Aims and objectives**

The aim of the thesis is well and precisely formulated.

In relation to the main objective, six tasks were defined concerning the risk characteristics, clinical presentation and therapeutic management of individuals with acute coronary syndrome and accompanying COPD; comparison with a control group of patients with acute coronary syndrome with similar demographic and clinical characteristics but without evidence of COPD; assessment of adherence to prescribed therapy after dehospitalization, in particular beta-blocker treatment; assessment of quality of life in patients with ACS and COPD versus control group; determination of causes of hospitalizations; analysis of clinical and demographic characteristics of deceased patients with ACS.

## **7. Clinical contingent and methods**

A clinical and epidemiological study was performed on a sufficient number of patients. It was conceived and designed as a prospective, single-centre study. The study included 140 consecutive patients with acute coronary syndrome who were hospitalized in the intensive care unit of the cardiology department of Hospital in Dobrich. The patients were divided into two groups – one group with a presumptive diagnosis of COPD and another group serving as controls, patients with ACS without a diagnosis of COPD. The groups analyzed were largely identical in terms of demographic and clinical characteristics, although the patients with ACS and COPD were older than those without COPD. Both groups were male-dominated. The criteria for patient participation in the study were clearly and unambiguously formulated and there were two groups of inclusion and exclusion criteria. It is worth noting the precise, well-planned selection of patients to achieve the study objectives and the numerous demographic and clinical indicators that were examined.

A wide range of modern, diverse and appropriate statistical methods were used, allowing clear and specific conclusions to be drawn. A sufficient number of parameters were analyzed that were fully consistent with the study design and the stated aim and objectives. All statistical analyses were performed on the IBM SPSS Statistics version 29.0.1.0. Statistical significance was assumed at a confidence level of  $p < 0.05$  using a two-tailed test.

## **8. Results and discussion:**

In the course of the study, a large number of results have been successfully systematically analyzed, and illustrated with tables and figures. They give a clear picture of the demographic and social characteristics of the patients; the most common comorbidities and the risk factors for ischaemic heart disease in both groups.

Laboratory parameters relevant to the development of ACS are discussed in detail and compared.

Anemia, chronic kidney disease and stroke were found to be significantly more prevalent in patients with ACS and CHD.

Patients in group 1, that is COPD patients were stratified according to symptomatology and GOLD ABE classification. Both groups of patients were divided into subgroups according to whether they had ST-elevation or non-ST-elevation ACS; they were also divided according to GRACE score; whether PCI was performed and the therapeutic strategy adopted on this basis.

Patients were followed up for one year, with two follow-up visits during this period. During this period, mortality was evaluated - percentage and causes in both groups, hospitalizations - frequency, causes, adherence to the prescribed therapy, dynamics in echocardiographic parameters and quality of life..

Each parameter is discussed in details and compared with data from the scientific literature, which once again highlights the good theoretical knowledge of Dr. Yankova on the topic, and the similarity in the data obtained in the PhD work and those published to date speaks for the reliability and precision of the scientific work.

## **9. Conclusions.**

The conclusions drawn from the results, which are eight, are clear, well formulated and reflect the main highlights of the study. They confirm the correctness of the structuring of the PhD work, the exactness of the selected criteria, methods and patients and meet the original objectives.

The contributions that are highlighted are original and confirmatory in nature. There are 5 original contributions, highlighting the pioneering work on the risk and clinical characteristics of patients with ACS and COPD, quality of life of patients with ACS and COPD, adherence to medical therapy, rehospitalizations and mortality after ACS in patients with COPD.

There were eight confirmatory contributions in total.

There are two publications related to the thesis one in peer reviewed journals and three presentations at national and regional conferences.

## **10. Critical comments and recommendations**

The PhD student Dr. Yankova has critically analyzed the limitations of her PhD work, pointing out some major obstacles to obtaining statistically reliable differences between the groups studied. As a critical remark one can mention the small number of patients for two relatively frequent diseases, the lack of analysis of the acid-base profile of the two groups of patients and, accordingly, the necessity and application of oxygen therapy.

## **11. Conclusion**

The PhD work of Dr. Simona Nikolaeva Yankova on "Acute Coronary Syndrome in Patients with Chronic Obstructive Pulmonary Disease" is very well structured with a clearly defined aim, correct selection of material, critical evaluation of results and precisely formulated conclusions. The development and presentation of the dissertation fully meets the requirements of Act on Development of the Academic Staff in the Republic of Bulgaria, it's Regulations for the Development of the Academic Staff at the Medical University – Varna. The exhaustive nature of the conducted research, the conclusions and contributions made give me grounds to propose to the members of the esteemed scientific jury to give a positive assessment for the award of the educational and scientific degree "Doctor of Philosophy" to Dr. Simona Nikolaeva Yankova.

22 Feb 2025

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/Assoc. prof. M. Dimova MD, PhD/