# REVIEW

**on behalf of Prof. Dr. Nikolay Margaritov Runev, PhD,
Cardiology Department at the Clinic of Propaedeutics of Internal Medicine
"Prof. St. Kirkovich "- University Alexandrovska Hospital,
Medical University - Sofia**

**Subject: Competition for the academic position of "Associate Professor" in the professional field 7.1. "Medicine" and scientific specialty "Cardiology", announced in the State Newspaper, issue 45/28.05.2021 for the needs of the Cardiology ward, Clinic of Cardiology in MHAT "NKB" - Sofia**

**Order No. 309 of July 22, 2021 of the Executive director of MHAT "NKB" for appointment of a scientific jury**

One candidate has been admitted to the announced competition for "Associate Professor" in Cardiology: Dr. Elena Svetlozarova Dimitrova, PhD, Head Assistant in Clinic of Cardiology, MHAT "NKB" - Sofia.

**The applicant has submitted all the documentation necessary for the preparation of the standpoint, in accordance with the requirements.**

## I. Concise curriculum vitae

Dr. Dimitrova completed her secondary education in 2002 at the First English Language High School in Sofia and graduated in "Medicine" at MU-Sofia in 2008. During the period 2009-2013 she was a trainee in cardiology at the UMHAT "St. Anna" - Sofia. From 2014 to 2019 she worked as a cardiologist in the Emergency Cardiology ward of MHAT "NKB" - Sofia and since 2019 hitherto she has been a Head Assistant in Clinic of Cardiology at MHAT "NKB" - Sofia.

In 2017 Dr. Dimitrova defended her dissertation work for awarding the Educational and Scientific Degree (ESD) "Doctor" in the Department of General Medicine at MU-Sofia. She is fluent in written and spoken English.

She is a member of the Bulgarian Society of Cardiology and the European Society of Cardiology.

## II. Research activity

Dr. Elena Dimitrova has presented **an author's report** for accordance and implementation of the minimum national requirements (MNR) for "Associate Professor", including publications, citations and research activities:

✓ Dissertation work for awarding the ESD "Doctor" - "Prospective follow-up of patients with pulmonary arterial hypertension and assessment of the effect of specific therapy application on the functional class and clinical course of the disease in compliance with a specific protocol for monitoring and escalation of the therapy":
**group A = 50 points (MNR - 50 p.)**

✓ Habilitation work - scientific publications (min. 10) in journals, which are referenced and indexed in worldwide databases with scientific information:
**group B = 190.4 points (MNR - 100 p.)**

✓ Publications and reports in scientific journals, referenced and indexed in worldwide databases with scientific information (SCOPUS and WEB OF SCIENCE): **gr. D7 = 108.5 points**

✓ Publications and reports in non-peer-reviewed journals with scientific review or in edited collective volumes: **gr. D8 = 243.3 points**

**Total number of points in group D = 351.8 points (MNR - 200 p.)**

✓ Citations or reviews either in scientific journals, referenced and indexed in worldwide databases with scientific information or in monographs and collective volumes (SCOPUS and WEB OF SCIENCE): **gr. E10 = 150 points**

✓ Citations or reviews in non-peer-reviewed journals with scientific review:
**gr. E12 = 25 points**

**Total number of points in group E = 175 points (MNR - 50 p.)**

**Total number of points in groups A, C, D and E = 767.2 points (MNR - 400 p.)**

A report from CML to MU-Sofia is presented for a **total number of citations 58**, of which in Bulgarian scientific journals - 15 and in foreign scientific journals - 43. **The total IF of Dr. Dimitrova`s publications is 8.184.**

**The main contributions** of Dr. Dimitrova`s scientific work are in the following areas:

1. **Pulmonary arterial hypertension (PAH) and pulmonary embolism (PE)**

✓ Dr. Dimitrova has actively participated in the creation, validation and application in clinical practice of a specific algorithm for follow-up of patients with PAH in one of the established expert centers in the country (UMHAT "St. Anna", Sofia).

✓ For the first time in our country an analysis of the effect of the conducted

specific therapy and the mortality rate in long-term follow-up of patients with PAH has been done, as the results obtained are compared with the data from international registries.

✓ Based on the data of consecutively hospitalized patients with moderate and high risk PE Dr. Dimitrova has participated in the creation of a new non-invasive parameter that can be used to improve the risk stratification in PE and to predict the risk of in-hospital mortality.

## 2. Coronary artery disease (CAD) and acute coronary syndrome (ACS)

✓ In patients with proven CAD, the polymorphisms in several candidate-genes in multifocal atherosclerosis (carotid or peripheral) have been studied. PCR-based genotyping of angiotensin-converting enzyme (ACE I/D), eNOS (G894T), endothelin-1 (138A I/D) and matrix metalloproteinase-3 (5A/6A) has been performed. A high incidence (29.5%) of multifocal atherosclerosis in patients with CAD and its association with the ACE genotype DD and ET-1 genotype II have been established.

✓ Based on own data, an analysis of the impact of the first COVID-19 pandemic wave and the restrictive measures imposed on the number of hospitalized patients with myocardial infarction, their characteristics and the course of the disease has been performed. The results are compared with a similar period in the previous year and are commented in the light of known data from Europe and the United States. These are the only data published so far for Bulgaria on this topic.

✓ An analysis of the prognostic role of the previous anemia has been made in patients with acute myocardial infarction with and without persistent ST-elevation. It has been shown it is an independent predictor of both complicated course of the infarction and increased in-hospital mortality.

✓ Data have been presented for:

- the treatment of infarction with persistent ST-elevation in elderly patients - the advantages of interventional treatment to reduce the infarction complications and mortality even in very elderly patients are established;
- treatment of elderly women with acute myocardial infarction with persistent ST-elevation - their poorer short-term prognosis has been proven compared to younger women despite the same reperfusion and drug treatment.

✓ For the first time in Bulgarian population a direct comparison of the risk profile of patients with myocardial infarction with and without ST-elevation has been made. It is proved that:

- the patients with myocardial infarction without ST-elevation have comparable frequency of the main risk factors for CAD compared to patients with ST-elevation myocardial infarction and appear to have better control of the risk factors and prognostic biomarkers;

- the presence of CTO in acute myocardial infarction with ST-elevation significantly worsens the long-term prognosis regardless of the coronary anatomy and its use for additional risk stratification has been discussed. However, in patients with acute myocardial infarction without ST-elevation, the presence of CTO do not appear to affect the prognosis.

✓ It is established that the inflammatory status upon admission of patients with ST-elevation acute myocardial infarction, treated with percutaneous coronary intervention, is an independent predictor of in-hospital mortality and the patients with the most pronounced inflammation (Leu number, hs-CRP level) have a 5-fold higher risk of death.

**3. Atrial fibrillation, electroshock therapy and electrocardiostimulation**

✓ Dr. Dimitrova has actively participated in the only (so far) register of patients with atrial fibrillation from the Balkan region (BALKAN-AF). The vast majority of the published data on this topic has been collected from Western Europe and the United States and the results of subanalyses of the large trials with direct oral anticoagulants (DOAC) often do not reflect the real clinical practice. Therefore, the data presented for the therapeutic strategy and the use of anticoagulant therapy in patients with atrial fibrillation from the Balkan region, represent substantial scientific and practical contribution.

✓ The efficacy and safety of:

- a protocol with non-escalating energies compared to the standard protocols for electrocardioversion in atrial fibrillation and flutter with an increasing shock energy at each subsequent stage and

- an individualized protocol for planned electrocardioversion relative to the patient's body surface, which provides a faster procedure with fewer consecutive shocks and better safety

have been analysed.

✓ On the basis of data from MHAT "NKB" a direct comparison of the efficacy at different energies of the so-called biphasic truncated exponential (BTE) impulses for electrocardioversion in atrial fibrillation/flutter has been performed. A high frequency of procedural success and an excellent safety profile with the studied biphasic

impulses have been established without a significant difference between the separate subgroups.

✓ The effect of permanent electrocardiostimulator implantation in patients with hypertrophic obstructive cardiomyopathy and recurrence of the intraventricular obstruction after alcoholic septal ablation has been analysed.

**4. Pharmacotherapy**

✓ The problem of clopidogrel resistance has been discussed as well as the modern concept of de-escalation of antiplatelet therapy.

✓ The use of an endothelin-receptor antagonist ambrisentan in patients with PAH is discussed based on the evidence from clinical trials.

✓ The available data for the use of colchicine as anti-inflammatory agent in the therapy of CAD and ACS have been analysed.

**5. Rare clinical cases**

✓ severe metformin-associated lactic acidosis complicated by shock, acute renal failure, vision loss and a subsequent episode of pulmonary embolism;

✓ myxoedema coma complicated by cardiac arrest and status epilepticus;

✓ chronic aortic dissection type B with a giant aneurysm formation and rupture of the false lumen;

✓ heparin-induced thrombocytopenia in patient with acute myocardial infarction and oncological disease.

**The quality of the presented publications fully meets the academic requirements.**

**III. Teaching and learning activities**

A report was presented on behalf of the Deputy Director for Research and Teaching activities of MHAT "NKB" in the assurance of that in her capacity as a teacher of trainees/interns and students Dr. Dimitrova had a teaching load of 250 hours per year.

The figure is averaged over the last 5 years.

**IV. Diagnostic and therapeutic activities**

Dr. Dimitrova is a very well-trained specialist in cardiology with significant clinical experience accumulated in two of the leading cardiology units in our country: Clinic of Cardiology in UMHAT "St. Anna" - Sofia and MHAT "NKB" - Sofia.

She has an excellent command and applies daily in practice the main non-invasive diagnostic and therapeutic methods in cardiology **with a particular interest in cardiology emergencies, modern therapeutic approaches in PAH, strategies for electrocardioversion and anticoagulation in atrial fibrillation.**

She acquired a specialty in "Cardiology" from MU-Sofia in 2014 and certificates for: professional qualification in "Echocardiography" from MU-Sofia and completed course "Clinical Training in PAH" in Poland - 2015.

He is an active participant in a number of international registries and randomized clinical trials.

**V. Conclusion**

I believe that with her qualification, research, teaching, diagnostic and therapeutic activities **Dr. Dimitrova fulfills the minimum national requirements** in the professional field "Medicine - Medical and Clinical Field" for the competitive position.

This gives me grounds **to vote in favour** and **to suggest to the esteemed members of the Scientific jury to support the election** of Dr. Elena Svetlozarova Dimitrova, PhD, for "Associate Professor" in Cardiology for the needs of **the Cardiology ward, Clinic of Cardiology in MHAT "NKB" – Sofia.**

Sofia, 07.09.2021

Prof. Dr. Nikolay Runev, PhD