

R E V I E W

by

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Subject: Participation in a competition for the academic position of "Associate Professor" in higher education 7. Healthcare and sports, Professional field 7.1. Medicine in specialty "Cardiac Surgery" for the Department of Cardiac surgery needs at MHAT National Heart Hospital, announced in SG issue no. 96/02.12.2022.

Candidate: Dr. Dimitar Ivanov Kuychukov, MD, Ph.D., Head of the Cardiac Surgery Department at the MHAT National Heart Hospital

I was assigned as member of the Scientific Jury of the competition with order № 54/01.02.2023 issued by the Executive Director of the MHAT National Heart Hospital. On the first online session of the Scientific Jury from 17.02.2023, I was elected as a President of the Scientific Jury and was assigned to write a "Review."

Dr. Dimitar Ivanov Kuychukov, MD, Ph.D., the Head of the Cardiac Surgery Department at the MHAT National Heart Hospital, is the only candidate who submitted documents to participate in the competition. Therefore, he meets the requirements of the Law and the Regulations for the Development of Academic Staff in the Republic of Bulgaria, and the Regulations on the Terms and Conditions for Acquiring Scientific Degrees and Occupying Academic Positions at the MHAT "National Heart Hospital."

- The candidate has acquired an education and science degree, "Doctor."
- He has held the academic position of Chief Assistant Professor at the Department of Cardiovascular Surgery and Invasive Cardiology at Medical University, Sofia, since 2019.

- To have the right to participate in the competition, he submitted a sufficient number of high-quality scientific publications that do not duplicate those offered for acquiring the education and science degree "Doctor."
- He meets all the requirements of the Academic Staff Development Law of the Republic of Bulgaria.
- There is no evidence of plagiarism in his scientific publications.
- Proven specialist with proven scientific and practical achievements.

Based on the submitted evidence, Dr. Kuychukov was allowed to participate in the announced competition and to be assessed by the Jury.

I. Biographical information, professional and scientific development of the candidate

Dr. Dimitar Ivanov Kyuchukov was born in 1976. In 2000 he graduated Medicine at the Medical University- Sofia. In 2014 he obtained a specialty in "Cardiac Surgery." In 2016 successfully defended his dissertation: "Surgical treatment of atrial arrhythmias," and obtained an education and science degree, "Doctor" of Cardiac Surgery, a diploma from MU-Sofia -000517 475-Д / 05.12.2016. In 2016 he completed his Master's Degree in "Health Management," at Medical University, Sofia. In 2019 he acquired a specialty in "Vascular Surgery."

Professional occupation:

2000- 2014 Dr. Kyuchukov was a resident in the Clinic of Cardiac Surgery, University Hospital " St.Ekaterina," Sofia, nowadays "Prof. Dr. Al. Tschirkov".

From 2016 to 2022- he was the Head of the Department of "Surgical Treatment of Acquired Heart Diseases," Clinic of Cardiac Surgery in University Hospital " St.Ekaterina," Sofia, nowadays "Prof. Dr. Al. Tschirkov".

2022- 2023- Interim Executive Head of the Department of Cardiac Surgery, MHAT National Heart Hospital.

2023-to present- after a competition, he is the Head of the Department of Cardiac Surgery at the MHAT National Heart Hospital.

Scientific development:

2008- 2019 – appointed by competition as an assistant in the Department of Cardiovascular Surgery at the Medical University, Sofia.

2019- to present - appointed by competition as a Chief Assistant Professor in the Department of Cardiovascular Surgery and Invasive Cardiology at Medical University Sofia.

II. Research activity and scientific contributions

1. Research activity

Dr. Dimitar Ivanov Kuychukov submits 33 scientific works for the present competition:

- **Defended dissertation** on the topic: "Surgical treatment of atrial arrhythmias" MU, Sofia
- **Original monograph**: "Surgical treatment of atrial fibrillation" - ISBN 978-619-753686
- **Co-author in three chapters of a collective monograph**: "Cardiac Surgery" - ISBN: 987-954-322-242-1
- **28 publications** with no evidence of plagiarism

He wrote 14 of those after he became a Chief Assistant Professor. He is the first author of 15 publications. 11 are in English and published in journals, indexed and referenced in a world database, and 9 are in journals with Impact Factor. 17 are in Bulgarian journals from the national reference list or collections of reports with a scientific review.

- **19 citations** – with no evidence of self-citation or plagiarism

From 31.12.2022, according to a quote reference from the Central Medical Library, he has 12 citations in Bulgarian sources, one in an international journal with Impact Factor. After 01.01.2023, until the competition deadline, he has 7 more citations.

The sum of scientometric indicators points is 558. It covers the minimum national requirements of the Academic Staff Development Law of the Republic of Bulgaria, the Application Regulations, and the Regulations of the terms and order of acquiring an Academic position in the National Heart Hospital.

2. Scientific contributions

The scientific and practical activity of the candidate targets several directions, which can be classified into different sections according to the subject of the publications:

- Surgical treatment of supraventricular arrhythmias and atrial fibrillation – 6 publ. № from the list: 1; 2; 11; 18; 19; 20;

As a dissertation subject, the candidate conducted the first study of surgically treated patients with atrial arrhythmias in Bulgaria. He analyzed the results of applying radiofrequency ablation in the left atrium during cardiac surgery with another main indication. For the first time in Bulgaria, the candidate presented the methodology of ablation for treating chronic atrial fibrillation in a theoretical and scientific aspect. He described epidemiological, clinical, and anatomical characteristics that appear as predictors of the failure of the methodology. Surgical treatment of atrial fibrillation has been proven to be a safe and highly effective method with a high procedural success rate. An applied scientific contribution is the development of an algorithm based on the accumulated experience and data about the indications and application methods of radiofrequency ablation of the left atrium. The subsequent monograph is the first on that subject in Bulgaria, fully reflects the problem's current status, and thoroughly describes all technical details of antiarrhythmic operations performance. An additional advantage of the monograph is the shared personal experience, which proves that the candidate has mastered the technical and theoretical interpretation of the described surgeries.

- Surgical myocardial revascularization - 7 publications, № from the list: 3;4;5;14;15;24;27;

Scientific-theoretical and confirmatory contributions: the candidate, as a team member, for the first time in Bulgaria, analyzed the results of his study, observing a large number of patients after revascularization performed in the condition of a beating heart and without the use of extracorporeal circulation. The authors presented the procedural success and analyzed characteristics specific to this type of intervention. The results for major complications occurring during the hospital stay of the patient and the medium-term follow-up have been described (14;15). In his study, for the first time in Bulgaria, the candidate compares and evaluates two methods of antithrombotic therapy after coronary artery endarterectomy (3). Soon after his publication, this study was cited in one of the leading cardiac surgery journals with an impact factor. Scientific-

applicable contributions - in two other publications on the subject, as a first author, the candidate describes two suitable methods for preparing grafts for aortocoronary bypass, venous and arterial (24;4). The candidate analyzes both methods' predictors of complications and early postoperative results. In one of the summaries published in a journal with Impact Factor - Heart Surgery Forum, Dr. Kyuchukov, as a member of a team, describes the initial experiences and results originating from the use of one of the world's first systems for automatically performing proximal anastomoses in bypass surgery (5).

- Surgical treatment of complications related to ischemic heart disease - 7 publications, № from the list: 7;10;17;28;31;32;33

The candidate's next topic of scientific interest is formed by his publications on The Surgical treatment of complications of ischemic heart disease. In four publications (7;10;17;28), the candidate's personal experience in the surgical treatment of post-infarction aneurysms of the left ventricle, together with the results from the teamwork of a group of surgeons from St. Ekaterina Hospital, including Dr. Kyuchukov himself was analyzed. These articles contain the most significant number of described patients with the pathology mentioned earlier (over 500). The study examines the epidemiology and risk factors for the development of left ventricular aneurysms, as well as the results achieved with surgical correction according to the method introduced by Prof. V. Dor performed in the conditions of ventricular fibrillation. The contributions achieved are confirmatory and have significant scientific-practical and theoretical value. The three chapters of the collective monograph, written with the participation of the candidate, are also concerning the topic and are with a valuable scientific and practical contribution (31;32;33).

- Surgical treatment of aortic diseases - 7 publications. № from the list: 9; 12; 13; 21; 22; 29; 30;

St. Ekaterina University Hospital is one of the renowned centers proven over the years for the surgical treatment of aortic diseases. While working in this hospital, Dr. Kyuchukov was a team member that introduced and developed for the first time in Bulgaria several unique methods for an interdisciplinary approach to aortic treatment. This experience is described in seven publications with scientific-practical and theoretical contributions. (9;12;13;21;22;29;30) Including indications for cannulation of the axillary artery, indications for an interdisciplinary (cardiac surgery, cardiology, and vascular surgery) approach for the treatment of complex pathology affecting more

than one segment of the aorta, for the first time in Bulgaria, a team, supervised by Dr. Kyuchukov, performed prosthetics of the ascending aorta and restoration of the aortic root using the modern technique called Florida Sleeve (22).

- Others, № from the list : 6; 8; 16; 23; 25; 26

The remaining six publications submitted for the competition also concern critical problems in Cardiac Surgery. Main topics: Surgical treatment of mitral valve diseases - 3 publ.; Surgical treatment of aortic valve diseases-2 publ.; Surgical treatment of pulmonary thromboembolism - 1 publ. Regarding diseases of the mitral valve, as a co-author, the candidate analyzed the results of valve-preserving operations of the mitral valve for the most prolonged period described by Bulgarian authors - 18 years (6). In a subsequent publication, the same team retrospectively investigated patients with mitral valve reoperations. Results confirmed the good outcome after valve-saving surgery and identified the most common reasons for reoperations - infective endocarditis and thrombosis of the valve prosthesis. In the latest publication regarding Mitral surgery, Dr. Kyuchukov describes introducing a virtual learning model he developed for mastering minimal access mitral valve annuloplasty techniques. (23). Aortic valve diseases are subjects of two publications written by the candidate: the first one presented five rare clinical cases of successfully surgically treated complications after transcatheter implantation of aortic prostheses, and the second one - first observational series of Bulgarian patients underwent aortic valve operations with a new type of seamless valve prosthesis implanted with upper mini-sternotomy (8;25). The last of the given publications presented the introduction of a new modification for retrograde perfusion of the pulmonary circulation in two cases of severe acute pulmonary thrombectomy with excellent results and a significant personal contribution (26).

III. Teaching and lecturing activities

Dr. Dimitar Ivanov Kyuchukov, is a Chief Assistant Professor in the Cardiovascular Surgery and Invasive Cardiology Department at Medical University-Sofia. According to the submitted report on the teaching hours (certificate issued from MU-Sofia), the candidate had 780 hours of classroom attendance and postgraduate training for the last three years. In addition, he was the supervisor of two residents, corresponding to the requirements for obtaining the academic position of Associate Professor.

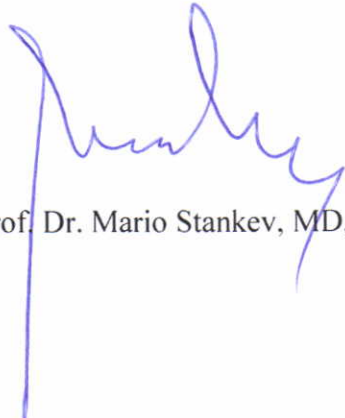
IV. Conclusion

Dr. Dimitar Kyuchukov has over 20 years of work experience as a cardiac surgeon. Therefore, according to the requirements of NACID (National Academic Center for Information and Documentation) for acquiring the academic position of "ASSOCIATE PROFESSOR," Dr. Dimitar Kyuchukov meets more than the minimum requirements. Based on the information above, Dr. Dimitar Kyuchukov is an accomplished cardiac surgeon with recognized contributions nationwide and a scientific researcher capable of independent scientific work in treating cardiac-surgical patients.

In conclusion, I consider that Dr. Dimitar Ivanov Kyuchukov, MD, Ph.D., meets the requirements of the Academic Staff Development Law of the Republic of Bulgaria, the Application Regulations, and the Regulations of the terms and order of acquiring an Academic position in the National Heart Hospital. Therefore I vote - positively and offer to the esteemed Scientific Jury to award him the academic status of "Associate Professor" in higher education 7. Healthcare and sports, Professional field 7.1. Medicine with a specialty in "Cardiac Surgery."

15.03.2023

Sofia



Prof. Dr. Mario Stankev, MD, Sc.D.