

To the Chairman of the Scientific Jury,
Appointed by an order of the Rector,
Medical University – Varna, Bulgaria
№ P-109-140/23.02.2023

REVIEW

From Prof. Borislav Georgiev Georgiev, MD, PhD,
Head of Cardiology Clinic at MBAL “National Hospital of Cardiology”,
Member of the Scientific Jury of the contest for acquirement of academic position “Associate
Professor” in speciality area “Cardiology”, professional division 7.1. “Medicine”, higher
education area 7. “Healthcare and Sports”,
published in SG № 102/23.12.2022

Principal assistant professor Yavor Dimitrov Peychev, MD, PhD, has submitted documents for the procedure via competition. He is the only candidate for filling the academic position. Dr. Y. Peychev is a principal assistant professor at the First Department of Internal Diseases, Faculty of Medicine, Medical University “Prof. Dr. Paraskev Stoyanov” – Varna. The submitted documents are in concordance with the requirements for filling the academic position “Associate Professor” and the Rules and Regulations for academic staff development in MU-Varna. I see no omissions in the presented documentation, and I declare that I have no joint research work with the applicant.

Biographic data

Yavor Dimitrov Peychev completed his secondary education at the English Language High School “Geo Milev” – Ruse, in 1980. In 1988, he graduated the Medical University of Varna as a Master of Medicine. Dr. Peychev obtained his Diploma of completed specialization in “Internal Disease” in 1994, and in 1997 acquired his diploma of completed specialization in “Cardiology”. From 2014 to 2017, Dr. Yavor Dimitrov Peychev used to work as an independent graduate on his doctoral thesis at the Department of Internal Diseases, Division of Cardiology, Medical University “Prof. Dr. Paraskev Stoyanov” – Varna. In 2018, Dr. Peychev acquired the educational and scientific degree “Philosophy Doctor” (PhD) in the speciality of Cardiology.

During the period 1990–2023, Dr. Peychev has been successively an assistant professor, senior assistant professor and principal assistant professor at the Department of Internal Diseases, Division of Cardiology, Medical University – Varna.

From 1990 to 2005, he used to work at the Cardiology clinic of “St. Marina” University Hospital – Varna. Since 2005, until now, Dr. Peychev is working as a cardiologist in the clinic of Cardiac Surgery at “St. Marina” University Hospital – Varna.

Dr. Yavor Peychev held a fellowship in “Treatment of Cardiac Arrhythmias” at Freiburg University, Freiburg, Germany in 1992. He conducted a fellowship in “Cardiopulmonary Resuscitation” in 1993 at the Michigan State University, East Lansing, Michigan, USA– “Annual Advanced Cardiac Life Support (ACLS) and Basic Cardiac Life Support (BCLS) Course”. Since 2013, Dr. Peychev has acquired a professional qualification in echocardiography – “Echocardiography – expert level, Transthoracic echocardiography, Transesophageal echocardiography, and Stress-echocardiography”.

1. Scientific research activity

1.1. Publications

For the competition, Dr. Yavor Peychev presented the following publications:

- Author's monograph in Bulgarian: “Calcific aortic stenosis. Sex-Specific Differences and Their Clinical Significance”. First edition. Varna: University Publishing House, Medical University “Prof. Dr. Paraskev Stoyanov” – Varna, 2022. 148 p. ISBN 978-619-221-411-1;
- Papers published in scientific journals, refereed and indexed in the world academic research databases – 2 items;
- Papers published in peer-reviewed scientific journals, not refereed in the world academic research databases, or published in edited collective and multi-author volumes – 10 items;
- Full-text papers in peer-reviewed scientific journals, exceeding the minimum scientometric requirements for holding the academic position of “Associate Professor” – 2 items.

The applicant is a first author in 6, a second author in 8, and a third author in one of the submitted for the contest papers. This confirms the contribution of the author to the conduct and completion of research and his proficiency in presenting the scientific data.

The total Impact Factor (IF) of the scientific works of Dr. Y. Peychev (publications and abstracts), submitted for participation in the competition is **36.166 IF** (*Scientometric reference*).

It is commendable to mention the habilitation work (the monograph) of Dr. Peychev – “*Calcific aortic stenosis. Sex-Specific Differences and Their Clinical Significance*”. Considering the subject matter and the presented up-to-date scientific data, the monograph is the first of its kind for Bulgaria and among the pioneer works in the field abroad, carrying out an exhaustive study on calcific aortic stenosis. On the basis of personal research, publications and his doctoral thesis,

the author offers a novel interpretation of the problem. Both, reviewers and readers are convinced in the practical relevance of the discussed problem.

In the competition, the applicant participates with 4 citations (*Scientometric reference*), as follows:

1. Citations in science journals referenced and indexed in the world's academic research databases – 3 items;
2. Citations in monographs and collective volumes with scientific peer-review – 1 item.

1.2. Scientific forums and symposia

Dr. Yavor Peychev has participated in the following scientific forums and research projects: 1) International congresses – 10 items; 2) International conferences, seminars, symposia and training courses – 4 items; 3) National congresses – 5 items; 4) National conferences, seminars, symposia and training courses – 34 items; 5) Research projects – Euro Heart Survey (EHS) on Atrial Fibrillation (EHS-AF), Randomised and controlled international clinical trials – CONVINCENCE (Controlled Onset Verapamil Investigation of Cardiovascular Endpoints); HERO (Hirulog and Early Reperfusion or Occlusion) – 2; ESTEEM (Efficacy and Safety of the oral direct Thrombin inhibitor ximelagatran in patients with recent Myocardial damage) and CORONA (Controlled Rosuvastatin Multinational Trial in Heart Failure).

Dr. Peychev's work, presented at the 2019 Scientific Sessions of the American Heart Association in Philadelphia, PA, USA, on "Coexistent Arterial Hypertension in Patients with Severe Isolated Calcific Aortic Stenosis Is Associated with Worse Long-term Survival after Surgical Aortic Valve Replacement" was especially honoured. Dr. Peychev received the "International Scholar Award", named after Dr. Paul Dudley White, one of the founders of the American Heart Association. This award is bestowed by the American Heart Association upon the highest-ranked abstracts for scientific contribution in the field of cardiology for the current year.

2. Research profile, practical and applied contributions

The main areas of research interest of the candidate include – cardiac rhythm pathology, non-invasive rhythmology, medication therapy as well as diagnosis and treatment of patients with operated heart. These fields are consistent with Dr. Peychev's career profile as an assisting physician, later chief assisting physician in cardiology, at the clinic of Cardiac Surgery of "St. Marina" University Hospital – Varna, and his teaching activity at the First Department of Internal Diseases, Division of Cardiology, at Medical University – Varna.

3. Most significant scientific contributions

The contributions of the presented scientific works [1 habilitation thesis (monograph) and 14 papers] can be distributed systematically within the next 4 clinical areas:

Modern pharmacotherapy of heart diseases (publications G8.1, G8.2, G8.3, G8.4, G8.5 and №1):

1. Novel antiarrhythmic medications with a focus upon atrial fibrillation, entering the current clinical practice (*publication G8.1*);
2. Antithrombotic therapy –fibrinolytic treatment in the setting of acute myocardial infarction, novelties and perspectives in thrombolytic therapy for acute myocardial infarction, antiplatelet therapy (*publications G8.2, G8.3, №1*);
3. Angiotensin-converting enzyme inhibitors and the role of the endothelium (*publication G8.4*);
4. Treatment with nitrates, current opinion and view on nitrate tolerance (*publication G8.5*).

The presented publication activity on modern pharmacotherapy of heart diseases is an integral part of Dr. Peychev's clinical practice: participation in international research projects – Euro Heart Survey (EHS) on Atrial Fibrillation (EHS-AF), as well as participation in randomised and controlled international clinical trials – HERO (Hirulog and Early Reperfusion or Occlusion) – 2, and ESTEEM (Efficacy and Safety of the oral direct Thrombin inhibitor ximElagatran in patients with recent Myocardial damage).

Non-invasive electrocardiography in the following sub-areas (publications G7.1, G8.6, G8.7, G8.8, G8.9 and G8.10)

1. Electropathogenesis of severe ventricular ectopic activity in ischemic heart disease.
The research of the applicant is focused on the intimate mechanisms of ventricular arrhythmias with non-invasive ECG methods. He aims to discover non-invasive and clinically accessible markers of increased risk of dangerous ventricular ectopic activity: (1) Dipyridamole – ECG stress test (inducible myocardial ischemia) in combination with signal-averaged ECG (ventricular late potentials) (*publication G8.6*); (2) Dipyridamole – ECG stress test (inducible myocardial ischemia) in combination with analysis of QT interval dispersion from the standard 12-lead ECG (*publication G8.9*); (3) analysis of QT interval dispersion from standard ECG in female patients with acute coronary syndrome (*publication G8.8*).

2. The idea of an “electrical” disease of the hypertrophic myocardium, which is currently defined as “electrical hypertrophy” of the left ventricle. By means of some non-invasive ECG methods – signal-averaged ECG (ventricular late potentials) combined with analysis

of QT interval dispersion from the standard 12-lead ECG, both available for routine use in everyday clinical practice, the candidate is attempting to search for non-invasive markers for detection of pathologic changes in the ventricular excitation and repolarisation in individuals with an isolated, “pure” model of left ventricular hypertrophy (young athletes, with no comorbidity) (*publication G8.7*).

3. Electrocardiological aspects of the heart failure syndrome. The presence of neurohormonal preconditioning and autonomic imbalance, now identified as integral elements of the pathogenetic pathways of heart failure, gave rise to the hypothesis that some non-invasive ECG parameters – the recovery of heart rate after stress (known as heart rate recovery – HRR), (Holter ECG monitoring during the six-minute walk test) and the signal-averaged ECG indices (ventricular late potentials), even in patients with bundle branch block, may be useful in the assessment of the risk of sudden death, as well as for some therapeutic decision making in this category of patients (*Publications G7.1 and G8.10*).

Diagnosis and treatment of the operated heart with a special focus on calcific aortic stenosis (Publications B3 and G7.2)

The clinical interest of the applicant is focused profoundly upon the calcific aortic stenosis. All of the investigated patients, with no exception, are evaluated during the perioperative and, at indications – during the intraoperative period. The entire spectrum of diagnostic cardiologic facilities was echocardiography-centred. The ultimate aim has always been to provide adequate care and optimal adherence to treatment before and after cardiac surgery. The major point of the clinical and scientific investigation of the candidate involves the comorbid conditions and sex-specific differences in patients with calcific aortic stenosis, as well as the prognosis after surgical aortic valve replacement and the related prognostic factors. A particular focus of author's research is the left ventricular hypertrophy in patients with calcific aortic stenosis, with its integral “anatomic” and “electrical” aspects, on top of which comorbidities (arterial hypertension) and sex-specific differences are probably built up (*publications B3 and G7.2*).

Sudden cardiac death. Risk of sudden death. Sudden death in heart surgery. Principles of cardiopulmonary resuscitation (Publications B3, G7.2, G8.8, G8.9, G8.10 and №2)

The publications presented for the competition constitute merely a part of the publishing and educational activity of the applicant in this field of medicine. The problems of sudden cardiac death are closely related to some of the research areas, presented above and have quite a bit overlapping points – “electrocardiology” and “pathology of the operated heart” (*publications B3, G7.2, G8.8, G8.9, G8.10 and №2*).

SCIENTIFIC AND APPLIED CONTRIBUTIONS

1. This is the first study in this country, carried out on the prognosis of patients with calcific aortic stenosis after surgical aortic valve replacement with prospective follow-up of 10 years after the operation.

2. It is the first attempt in this country for an assessment of the sex-specific differences in patients with calcific aortic stenosis in view of their clinical significance.

3. Methodological contributions. For the purpose of critical and correct data analysis and interpretation in certain studies, the applicant seeks out a “pure” (hemodynamic and clinical aspects) model of left ventricular hypertrophy – young athletes, isolated calcific aortic stenosis, in order to eliminate, as much as possible, the impact of comorbidity on the short-term and long-term prognosis.

4. An attempt has been made for an investigation of the clinical importance of some non-invasive electrocardiologic indicators – ventricular late potentials (signal-averaged ECG) and dispersion of the QT interval (standard ECG), as risk markers of severe ventricular arrhythmias and sudden death in patients with heart failure, myocardial ischemia and left ventricular hypertrophy.

4. Academic, research and administrative activity

Until 2005, Dr. Yavor Peychev used to work at the Cardiology Clinic, “St. Marina” University Hospital – Varna. Since 2005 Dr. Yavor Peychev is a cardiologist at the Clinic of Cardiac Surgery, “St. Marina” University Hospital – Varna. During all that period Dr. Peychev has been successively an assistant professor, senior assistant professor and chief assistant professor at the Department of Internal Diseases, Medical University of Varna.

The applicant delivers lectures in the following academic courses: 1) Clinical exercises and seminars in cardiology for fourth-year medical students – Bulgarian and English language programmes; 2) Lectures on cardiology for fourth-year medical students – Bulgarian and English language programmes; 3) Lectures on cardiology for fourth-year medical students – optional discipline; 4) Lectures on cardiology for postgraduate physicians – specialization in cardiology; 5) Lectures on Echocardiography for cardiologists, expert level – professional qualification with recognised legal capacity; 6) Academic mentor in project BG05M2OP001-2.002-0001 – Student Practices – Phase I.

The applicant's teaching workload accounts for more than 220 hours per year for the last four academic years.

5. Membership in scientific organisations

Dr. Yavor Peychev is a member of the following national and international scientific organisations:

- Bulgarian Medical Association
- Bulgarian Society of Cardiology
- Association of Specialists in Echocardiography – “Varna-Echo”
- “Heart-Lung” Association
- American Heart Association
- International Society of Electrocardiology

According to the minimum requirements of the Medical University – Varna and NACID for acquirement of the academic position of “Associate Professor”, Dr. Yavor Dimitrov Peychev exceeds the minimum level of requirements.

On the basis of the above mentioned data for Dr. Yavor Peychev, he can be characterized as follows:

- A researcher, capable of independent and creative scientific work in the field of cardiology and especially in the field of cardiology on behalf of cardiac surgical patients.
- An erudite physician with a comprehensive medical scope.

In conclusion, I consider that Yavor Peychev, MD, PhD, meets the requirements of the DASRBA and the Rules and Regulations of the Medical University of Varna for Academic Staff Development. I offer with respect the distinguished Scientific Jury to adjudicate the academic position “Associate Professor” in higher education area 7. “Healthcare and Sports”, professional division 7.1. “Medicine” and scientific speciality “Cardiology” to Dr. Yavor Peychev.

03/05/2023



Prepared by:

(Prof. Borislav Georgiev, MD, PhD)