

REVIEW

from

Prof. Dr. Nikolay Rumenov Sapundzhiev, MD

Department of Neurosurgery and ENT diseases, Division of Otorhinolaryngology, Faculty of Medicine, Medical University-Varna, habilitated in Professional area 7.1. Medicine, Medical University - Varna, member of the Scientific Jury of a competition for the awarding the academic title "Associate professor" for the specialty "Ear, Nose and Throat Diseases", announced in State Gazette 102/23.12.2022

Subject:

Competition for awarding the academic title "Associate professor" in Higher education area 7. Health care and sports, Professional domain 7.1. Medicine, Specialty „Ear-nose-throat diseases“, announced in State Gazette 102/23.12.2022

Candidate: Dr Galen Dimitrov Shivarov, MD

I. Brief details of the candidate's career and biographical profile:

Dr. Galen Dimitrov Shivarov was born on 22.03.1969 in Dobrich. He graduated from the Medical University "Prof. Dr. Paraskev Stoyanov"-Varna in 1995. Dr Galen Shivarov began his career as the head of the SHU in the village of Asparuhovo in 1995. In 1997-1998, he worked as a resident in the ENT department of the Medical Center in the town of Dulgopol, and from 1998 to 2000 - as a resident in the ENT department of DKC IV-Varna. In the period between 2000 and 2009, he worked as a resident in the ENT-department of the "St. Anna"-Varna. During the period 2009 - 2010 he was medical manager of the DCC "Chaika" - Varna. During the period 2010-2012 he was ENT consultant at the "St. Anna"-Varna. In the period between 2012 and 2014 he was head of the ENT department of the hospital. In 2014-2015 he was the deputy director of medical activities and in 2015-2017 he was the executive director of the MBAL "St. Anna" - Varna. During the period between 2017 and 2023 he was the head of the ENT-department of the General Hospital "St. Anna" - Varna and vice-chairman of the board of directors of the hospital.

Dr Galen Shivarov, MD obtained the educational and scientific degree "doctor" in 2016. The topic of his dissertation was: "*Effectiveness of radiofrequency thermotherapy in hypertrophic rhinopathies*".

Dr Galen Shivarov, MD participated in a number of specialized courses both in Sofia, Bulgaria (on audiometry and otoneurological tests, surgical treatment of laryngeal diseases, including oncology, bronchoesophagology - foreign bodies in the lower respiratory tract, radiofrequency induced thermotherapy, surgery of the nose and paranasal sinuses, as well as in practical dermatology and aesthetic medicine), as well as abroad - in the Netherlands Cancer Institute (NKI) in Amsterdam, The Netherlands (on surgical placement of voice prostheses after laryngectomy and on postoperative pulmonary and olfactory rehabilitation).

Acquired specialties: Dr Galen Shivarov, MD has a recognized specialty in Otorhinolaryngology, head and neck surgery, acquired in 2001, and in Health Management, acquired in 2005.

II. Overall evaluation of the materials, handed in for the competition:

The review of the materials shows that the procedure for disclosure, announcement and participation in the competition has been fully followed. The documents for the competition have been prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation in Medical university - Varna.

1. Scientific indicators

Dr Galen Shivarov, MD participates in the current competition with the following scientific works:

One dissertation work for obtaining the educational and scientific degree "Doctor".

A monograph entitled "*Modern applications of acoustic pharyngometry*".

A total of 12 full-text articles published in a total of nine Bulgarian journals, as sole author in ten articles, and first and fourth author in one article each. Ten articles were published in Bulgarian and three in English

Dr. Shivarov is co-author of utility model No. 1845 "*Pharmaceutical composition for the treatment of acute and chronic rhinitis*", registered by the Patent Office of the Republic of Bulgaria.

A total of six summaries of reports presented at four scientific forums in Bulgaria, and participation with a total of four reports at three other scientific forums in Bulgaria.

The total number of citations of two of his articles and two of his abstracts by Bulgarian authors in a total of seven magazines is 18.

2. Participation in scientific and a research project

Dr Galen Shivarov, MD, is the head of the project for the application of the method of acoustic pharyngometry, introduced as part of the screening tests for sleep disorders in Varna for the first time in Bulgaria and implemented in the Municipal Programs "*Prevention of Sleep Apnea*" in 2015, 2016 and 2017.

III. Evaluation of the research activity. Characteristics of publication activity and scientific production:

The scientific activity of Dr Galen Shivarov, MD is due to his intensive treatment and diagnostic work as an leading otorhinolaryngologist.

His scientific works cover the following main areas:

1. Otorhinolaryngology
2. Oncology
3. Medical scientometrics

The main directions in his research work are related to the modern diagnosis and treatment of some socially significant otorhinolaryngological diseases in adults and children. They can be classified as follows:

1. Modern diagnosis and treatment of chronic rhinopathies.
2. Modern diagnosis of obstructive sleep apnea and snoring in elderly patients.
3. Social epidemiology of laryngeal cancer.
4. Diagnosis and treatment of rare benign otorhinolaryngological diseases.

The effective application of nasal endoscopy, anterior active rhinomanometry and acoustic rhinometry in the diagnosis of chronic hypertrophic rhinopathies (chronic hypertrophic rhinitis, deviation of the nasal septum and compensatory hypertrophy of the concha) and the advantages of radiofrequency induced thermotherapy alone or in combination with modified Cottle septoplasty in these diseases are systematized in detail in the dissertation (A1). Confirmed are the main advantages of this thermotherapy - safety, short duration, therapeutic effectiveness and lasting clinical effect. An original diagnostic and therapeutic algorithm is being developed for patients with these diseases (A1).

A review article is dedicated to the modern molecular diagnosis of allergic rhinitis, highlighting the increasing applicability of molecular biomarkers in children and adults, the increasing availability of genetic testing, and new reliable tests and devices to identify risk for the development of this socially significant disease (App. № 1).

For the first time in Bulgaria the method of acoustic pharyngometry was applied in persons with disturbed breathing during sleep within the framework of a prophylactic otorhinolaryngological program in the city of Varna (B3; G7-1; G8-1; G8-5). This modern non-invasive method allows both the broad scale early diagnosis of obstructive sleep apnea and snoring in adults and children, as well as the timely determination of the future therapeutic strategy (conservative or surgical). A number of significant statistically reliable correlations were identified between the values of the specific anthropometric and pharyngometric indicators in the specific pathological changes in the nasal canal, oral and pharyngeal cavity of the patients. The main advantages of the method of acoustic pharyngometry consist in the precise three-dimensional functional-morphological assessment of the oral and pharyngeal cavity, non-invasiveness, reproducibility, speed, economy, as well as the possibility of dynamic evaluation of the recordings during short time intervals.

The most common findings in the oral cavity are a low-lying soft palate and an elongated uvula (B3; G7-1). There were statistically significant differences between males and females in both body mass index, neck circumference and standardized neck circumference, as well as pharyngeal cavity and vocal tract lengths and volumes (B3; G8-5). Significant differences were found between the values of the volume of the pharyngeal cavity, the average and minimum cross-section and the minimum distance in healthy individuals and patients with mild and severe pharyngeal dysfunction causing sleep-related breathing disorders (B3; G8-1).

Morbidity and mortality from cancer of the larynx were evaluated in the period between 2013 and 2015 in six regions of North-Eastern Bulgaria - Varna, Dobrich, Razgrad, Ruse, Silistra and Shumen (G7-2). Men are much more frequently affected than women throughout the three-year period. A tendency towards a slight improvement of these indicators was evidenced in 2015.

A review article discusses both the actual and standardized incidence and mortality of

laryngeal cancer in different countries, as well as the survival of patients with this socially important disease (G7-3). The issues of risk factors, the role of human papillomavirus infection and modern prognostic markers in this disease are analyzed.

Two problem-oriented scientometric articles are devoted to the diagnosis of laryngeal cancer.

The dynamics of international scientific communications are analyzed based on the abstracts of the publications, published in the period 2010 and 2019 and referenced in the databases *Web of Science Core Collection*, *MEDLINE* and *BIOSIS Citation Index on Web of Knowledge* and *Scopus* (G8-2). The leading authors, the "core" journals, the most attractive scientific forums and the articles that received the most citations in these databases stand out. The importance of international scientific cooperation is emphasized.

Dynamic institutionalization of the studies on this problem, published during this period and referenced in these databases, is characterized by a significant stratification (G8-3). The leading role of research teams from China and the journals from the USA is evident. A great variety is found in terms of the thematic profiles of scientific institutions and journals. The most productive scientists and scientific institutions with which young Bulgarian oncology specialists can establish fruitful contacts, the titles of the "core" journals and the most cited articles are identified.

A 29-year-old patient with Tornwaldt epipharyngeal cyst is presented (App. № 4). The tumor is diagnosed using nasopharyngoscopy, magnetic resonance imaging, computed axial tomography and histological examination. A successful excision of the cyst was performed under general intubation anesthesia.

A 69-year-old patient with a chondroma on the laryngeal surface of the epiglottis obstructing the entrance to the larynx (G8-4) is described. This relatively rare benign neoplasm is diagnosed using axial computed tomography and intraoperative biopsy (frozen section). Before extirpation of the tumor, a tracheostomy is performed under local anesthesia. The tracheostomy is closed after complete recovery of the laryngeal function.

The diagnostic value of the ETF-test in assessing the individual's ability to react to a change in ambient pressure in order to identify persons at risk of middle ear barotrauma is investigated (App. № 2). Statistically significant differences were found in the ability to compensate for this change between divers and inexperienced patients.

Dr. Galen Shivarov has active scientific profiles in [Google Scholar](#).

A detailed IF-reference is also presented.

Major original scientific contributions

The theoretical and applied contributions in the scientific works of Dr Galen Shivarov, MD are directly related to his clinical experience. They relate to the following main thematic areas: Devices for screening of breathing disorders during sleep, radiofrequency-induced thermotherapy, epidemiology and medical scientometrics of laryngeal cancer.

The casuistic reports mentioned above also deserve attention.

For the first time in Bulgaria, both the modern literature on acoustic pharyngometry and the author's own experience of the practical application of this modern method are systematized, proving its diagnostic effectiveness in breathing disorders during sleep.

For the first time in Bulgaria within the framework of a prophylactic otorhinolaryngological program in the city of Varna, the method of acoustic pharyngometry is applied to persons with impaired breathing during sleep.

For the first time in Bulgaria the efficacy of radiofrequency induced thermotherapy in hypertrophic rhinopathies is proven.

For the first time in Bulgaria the regional social epidemiology of laryngeal cancer is analyzed.

For the first time in our country, the scientometric aspects of international scientific communications and the dynamic institutionalization of research on laryngeal cancer are being investigated.

IV. Evaluation of teaching activity:

Dr Galen Shivarov MD is involved in the teaching and practical training of nine doctors-specialists in otorhinolaryngology during the period between 2007 and 2022, who acquired a specialty.

Dr Galen Shivarov MD, is a member of Българското национално сдружение по оториноларингология и хирургия на главата и шията.

V. Evaluation of the medical and diagnostic activity:

Dr. Galen Shivarov is a versatile specialist with extensive experience, gained in various clinics in Bulgaria and abroad. He greatly expanded the spectrum of activity of the ENT-Department of MBAL "Sveta Anna" - Varna.

The submitted documentation is complete and meets all the requirements of the competition. Dr. Shivarov has extensive professional experience as a specialist in otorhinolaryngology, teaching and managing experience.

CONCLUSION

The candidate for the competition, Dr. Galen Shivarov, MD fully meets the requirements for occupying the academic position of "Associate professor", according to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its implementation at Medical University - Varna. The submitted documentation is complete and meets all the requirements. My personal impressions from him as a physician, specialist, surgeon and scientist are excellent.

His scientific work, extensive professional experience as a specialist in otorhinolaryngology and personal qualities give me reason to confidently give my POSITIVE evaluation and to recommend to the respected Scientific Jury the awarding of academic position "Associate professor" Dr. Galen Dimitrov Shivarov, MD.

16.04.2023

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