Review

by Prof. Dr. Marieta Ivanova Kostianeva, MD

Subject: Competition for the academic position of "associate professor" in ophthalmology at the Department of Eye Diseases and Visual Sciences, Faculty of Medicine, Medical University - Varna

of Dr. Mladena Nikolaeva Radeva, MD

Dr. Mladena Nikolaeva Radeva is the only candidate for the academic position "associate professor" in the specialty "Ocular Diseases", professional direction "7.1 Medicine", in the field of higher education "7. Health and Sports" at the Faculty of Medicine, Department of Eye Diseases and Vision Sciences, according to an announcement in the State Gazette, no. 102 of 23.12.2022

Brief biographical data

Dr. Mladena Nikolaeva Radeva was born in 1990. In 2015, she graduated as a Master of Medicine at the Medical University - Varna. From 2015 to 2019, he was a specialist in "Ocular Diseases" at the Medical University - Varna, Specialized Hospital for Active Treatment - Varna. In the period 2018-2021, he is a full-time doctoral student at the Department of Eye Diseases and Vision Sciences, MU- Varna.

In 2021, he successfully defended a dissertation for the acquisition of a Doctor of National Academy of Sciences on the topic: "Possibilities for microstructural analysis and assessment of damage to the anterior ocular surface from ultraviolet rays of natural and artificial origin."

In 2018-2020, he acquired an additional qualification - a master's degree in health management and medico-social care at the University of Varna. From 2018 until now, Dr. Mladena Radeva has been successively an assistant and chief assistant (from 2021) at the Department of Eye Diseases and Visual Sciences, MU - Varna. From 2020 to the present, he is an ophthalmologist at the Specialized Hospital for Eye Diseases for Active Treatment - Varna. Dr. Mladena Radeva speaks English and Spanish and has very good computer literacy.

Teaching and learning activity

The educational and teaching activity of Dr. Mladena Radeva began in 2017-2018, first as a part-time teacher, and from the beginning of 2018 as a full-time teacher. According to the presented reference, the candidate has for the last 3 academic years an average workload of 345 study hours leading exercises of BEO and AEO students (according to the standard 220 study hours). Her teaching experience is nearly 5 years. He participated in a textbook - collective, with a total volume of 350 pages.

Research activity

In the current competition for associate professor, Dr. Mladena Radeva participated with 1 dissertation to obtain the ONS "Doctor", defended in 2021: "Possibilities for microstructural analysis and assessment of damage to the anterior eye surface from ultraviolet rays of natural and artificial origin". The candidate presents 1 monograph published in 2022 - "Meibomian glands - norm and pathology", with a volume of 230 pages. Dr. Mladena Radeva has 27 publications in journals and anthologies, 3 of which she is the sole author of, and 24 of which she is a co-author. As follows, she is first author - in 8 publications and 2 scientific works, second author - in 10 publications, third author - in 5 publications and fourth author - in 4 publications. Eleven of the publications are in Bulgarian and 16 in English. He has participated in 1 national and 8 university projects, as well as 20 participations in scientific forums, 15 of them in national and international congresses and conferences in Bulgaria and 5 in international scientific forums abroad.

The main directions in the scientific works of Dr. Mladena Radeva are the following:

1. Study of the effect of ultraviolet light on the eye analyzer
2. Microstructural analysis of the ocular surface
3. Diagnosis and treatment of glaucoma
4. Children's vision - prevention and prophylaxis
5. Study of the Meibomian glands as part of the ocular surface

FIELD 1: Investigation of the effects of ultraviolet light on the eye analyzer

In several studies by the author (Г7.1, Г7.4, Г7.5, Г8.4, Г8.7) the microstructural changes in the anterior ocular surface as a result of ultraviolet irradiation were investigated by in vivo laser scanning confocal microscopy (IVLSCM), both from a natural and an artificial source (for which a solarium was chosen).

Limited publications are found in the scientific literature on the effects of quantifiable UV exposure on the ocular surface, particularly at the microstructural level. The candidate's scientific works define qualitative microstructural changes in the cornea and conjunctiva that occur under the influence of ultraviolet rays of natural origin, as well as quantitative differences in the density of cells on the anterior ocular surface, when neither quantitative nor qualitative changes are detected during clinical biomicroscopy .

The hypothesis regarding ultraviolet light as a potential etiological factor for "aging" and the occurrence of various pathologies of the ocular surface has been confirmed. The need for optimal protection of the ocular surface has been proven, as well as the relationship between ocular sun protection and the microstructural changes of the ocular surface.

FIELD 2: Microstructural analysis of ocular surface and mucin globules in contact lens wear (G7.2) and Microstructural analysis of ocular surface and Kayser-Fleischer ring in Wilson's disease (G7.3)

By in vivo confocal microscopy, mucin beads were shown to affect the corneal surface, which involved disintegration of the epithelium and activation of keratocytes. The main predisposing factor for the appearance of mucin balls is the uneven surface of the cornea.

For the first time in the world literature, a microstructural analysis of the Kayser-Fleischer ring in patients with Wilson's disease was performed and described by in vivo confocal microscopy (increased corneal thickness, decreased cell density and abnormal microstructures).

FIELD 3: Diagnosis and treatment of glaucoma

The candidate's scientific research is related to studying the specifics of the diagnosis and treatment of glaucoma within the borders of Bulgaria, as well as the potential social risks

associated with this nosological unit. (D8.2, D8.5, D8.15). Data have been published on the methods used by trainees and young ophthalmologists to examine, diagnose and treat glaucoma, as well as the difficulties they experience. Gaps in the training of ophthalmology specialists and young specialists regarding the disease glaucoma have been identified. The relationship between the presence of glaucomatous damage and prerequisites for road accidents has been confirmed.

FIELD 4: Children's vision - prevention and prophylaxis (D8.6, D8.9, D8.12)

The high effectiveness and efficiency of the screening programs for the protection of children's vision with the aim of reducing amblyopia among the population of the city of Varna has been confirmed. A study was conducted to control the progression of myopia in children with the adaptation of multifocal contact lenses with a distant design.

FIELD 5: Study of the Meibomian glands as part of the ocular surface (monographic work, D8.13, D8.16)

Meibomian gland dysfunction (MEG) is an extremely common condition in ophthalmic practice. The author's monographic work describes in detail the anatomy and pathophysiology of Meibomian glands, their relationship with dry eye syndrome, methods of diagnosis and treatment of their damage.

Conclusion

The main research activity of Dr. Mladena Radeva is focused on the anterior ocular surface. Works related to microstructural analysis of the ocular surface by confocal microscopy predominate.

Dr. Radeva proves that confocal microscopy, which allows a qualitative and quantitative assessment of eye structures at the cellular level, is a unique methodology for Bulgaria, representing a bridge between research and clinical practice. It enables the detection and monitoring of histopathological changes before the onset of clinical ones. I consider the candidate's microstructural analysis of changes in the eye surface under the influence of

natural and artificial ultraviolet rays to be a significant contribution, published for the first time in world literature.

For the first time in the Bulgarian literature, a complete work examining the Meibomian glands has been published. All necessary methods for diagnosis of Meibomian glands are described in detail. Dr. Radeva's monograph can be referred to as a kind of guideline covering the steps for the treatment of Meibomian gland pathology.

Dr. Radeva is a promising young scientist with special interests in the field of anterior eye segment, cornea, dry eye. It touches on current scientific problems that open up new horizons in its development.

In the presented scientific production, problems concerning specialized and young specialists are also considered. He approaches the tasks he sets himself with responsibility and enthusiasm. Possessing in-depth theoretical knowledge, the candidate has the qualities to develop her research potential and improve herself as a clinician. Dr. Radeva's scientific works presented for review are a prerequisite for her future even greater scientific achievements. In terms of volume and qualities, the scientific output of the candidate meets the requirements for an associate professor at the University of Varna. I propose that the scientific jury vote "positively" regarding the receipt of the academic position of "ASSOCIATE PROFESSOR" by Dr. Mladena Nikolaeva Radeva.

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