

REVIEW

By Prof. Dr. Irena Dimitrova Kostadinova, DSc

Nuclear Medicine Clinic, UB "Acibadem City Clinic-Mladost", member of the Scientific Jury of the competition for the scientific position "docent" in the scientific specialty "Nuclear Medicine", in the higher education field 7. "Health and Sports", professional direction 7.1 "Medicine", for the needs of the Faculty of "Medicine", Department of "Imaging diagnostics, interventional radiology and radiation therapy", MU-Varna, announced in SG No. 28/28.3.2023.

Regarding: The candidacy of chief assistant. Dr. Zhivka Dancheva Mezan, MD, Clinic of Nuclear Medicine and Metabolic Therapy, Faculty of Medicine, MU-Varna.

I. Professional development

Dr. Dancheva was born in 1979 in Veliki Preslav.

Graduated in medicine in 2005 at MU - Pleven. In the period 2006-2012, she was a resident and full-time PhD student at the Clinic for Nuclear Medicine and Metabolic Therapy. She successfully acquired a specialty Nuclear medicine and defended her thesis on "Metabolic radiopharmaceutical therapy with ^{89}Sr (Metastron) of painful bone metastases in patients with carcinoma of the prostate and mammary gland". Since 2016, he has been a chief assistant in the department of "Imaging diagnostics, interventional medicine and radiation therapy".

The general impression of Dr. Dancheva's work is that she is highly motivated and dedicated to her work as a physician and professionalist, respected by her

colleagues and patients, dealing quickly and very successfully with the administrative tasks in the Clinic. The candidate's high work capacity and her ability to work in a team, with a willingness to always help her colleagues and patients, are impressive.

She appears as a doctor with broad medical knowledge and deep scientific interests regarding the diagnostic application and algorithm of multimodal imaging technologies - SPECT-CT and PET-CT, evidence of which is her numerous participations in international and national forums in Bulgaria.

II. Research activity

In the current competition for "associate professor", Dr. Dancheva presents a total of 30 scientific papers, incl. 1 monograph, 7 full-text articles and 22 reports with published abstracts in scientific publications, referenced and indexed in world-renowned databases, with an impact factor.

Her scientific interests are mainly focused on nuclear oncology and especially in the diagnostic algorithm in early and advanced malignant melanoma, in carcinomas of the prostate, head and neck, and to metabolic radionuclide therapy in metastatic bone disease. Her publications also have a great practical contribution in some non-oncological diseases – infective endocarditis, sarcoidosis and the Covid 19 infection. The author has precisely and clearly formulated her main scientific contributions, the most significant of which are:

1. For the first time in our country, the application of modern hybrid nuclear medicine methods - PET-CT and SPECT-CT in skin melanoma is discussed in the

presented monograph - "Skin melanoma through the eyes of nuclear medicine" in a large number of patients - with personal results from 500 patients.

The use of these imaging methods is considered with high professionalism, both in the early stage and in advanced disease and in monitoring the effect of treatment, incl. and after the application of the innovative and promising immunotherapy. The latter was developed in the last 2-3 years and there is still no significant international research in this direction. This makes the author one of the pioneers in these studies.

Thanks to her rich experience from numerous examined patients and in-depth knowledge of international studies, with over 300 cited titles, Dr. Dancheva very professionally motivates the criteria for evaluating the results and the recommendations for behavior - both in staging, restaging and assessment of treatment. Many targeted and illustrative examples of individual readings drawn from the author's own experience are demonstrated. SPECT-CT and PET-CT as the most reliable modern hybrid studies and included in the overall algorithm for diagnosis of patients with malignant melanoma. Thanks to these methods, medical oncologists and radiologists are directed to personalized therapeutic behavior, increasing the quality of life and survival of patients.

With the summarized personal results and the world experience, the present monograph is confirmed as a very valuable and first of its kind manual of conduct and is a next step in the development of nuclear medicine in our country and in the direction of its European and global integration. It is very useful for specialists and residents in nuclear medicine, medical radiology, medical oncology, dermatologists and surgeons.

2. For the first time in our country, a comprehensive evaluation of the role and place of metabolic radionuclide therapy with ^{89}Sr -Metastron in the pain syndrome of patients with prostate cancer, as well as in those with breast cancer and the combination of radiopharmaceuticals with bisphosphonates, chemotherapy and radiotherapy. A comprehensive assessment was performed according to post-treatment ECOG performance status, radiological changes and duration of progression-free survival. The factors affecting the effect of treatment were also studied in detail - the initial status of the patient, the number of metastases, the initial blood parameters, proving that combining this treatment with targeted radiotherapy in patients with mixed bone metastases has a better effect. A valuable therapeutic algorithm for the treatment of metastatic bone pain, including bisphosphonates, chemotherapy, and radiation therapy, has been developed to aid daily oncology practice.

3. The contributions of the author, together with colleagues from the Clinic of Nuclear Medicine, in malignant diseases are significant:

- of the head and neck, indicating the priority role of PET-CT in addition to staging and restaging patients, and also for the visualization of synchronous and occult carcinomas;

- of the prostate - as a significant number of studies have established the significant role of ^{68}Ga -PSMA in the visualization of recurrences, incl. and at PSA values below biochemical recurrence of 0.2 ng/ml. A positive correlation was found between the sensitivity of PET-CT and the levels of the tumor marker-PSA. The method has been shown to be superior in accuracy to conventional imaging methods in restaging and staging high- and intermediate-risk patients and is

directly dependent on PSA levels and ISUP grade. The possibilities for false positive and negative findings as sources of error are also indicated.

- in multiple myeloma, PET-CT has been found to be more sensitive than conventional imaging methods in the visualization and localization of bone lesions.

- of high practical significance is the demonstration of the benefit of the application of endocrine therapy in breast cancer in men in the metastatic stage with positive ER.

The overall impact factor of the presented scientific works in the competition for "Associate professor" is very high - 204,073, and the number of citations - 26, which shows the importance of Dr. Dancheva's work and the scientific interest of Bulgarian and foreign authors in them.

It becomes clear that Dr. Dancheva is an active author who is constantly developing as a professional, scientist and teacher, sharing her experience at home and abroad, with an ever-increasing authority among his colleagues from various specialties - Nuclear medicine, radiologists, oncologists, urologists.

From the total required minimum number of indicators under item G5-9 of 200, for the candidate they are 207.05. Thus, she fully meets the requirements of NACID for holding the scientific title "Associate Professor".

III. Public activity

Dr. Dancheva is an active expert and a successful organizer of work at the Clinic and in training students, resident students and medical specialists. She is the main

organizer of the Annual Meetings of the Bulgarian Society of Nuclear Medicine, and is responsible for administrating of its website.

She is a member of prestigious Bulgarian and international professional organizations - Bulgarian Society of Nuclear Medicine, EANM, ESHI.


IV. Educational activity

From the presented documents it is clear that Dr. Dancheva has a total of 14 years work experience as a specialist in nuclear medicine, assistant and chief assistant at the Clinic for Nuclear Medicine and Metabolic Therapy at the Department of Imaging, Interventional Radiology and Radiotherapy. She has 7 years of teaching experience with medical students, nuclear medicine and imaging specialists, X-ray laboratory technicians, nurses and midwives, with an annual teaching load varying between 112-169 h.

CONCLUSION: Dr. Dancheva is the only candidate in the competition for the scientific title "Associate professor" in the scientific specialty "Nuclear Medicine", Department of Imaging, Interventional Radiology and Radiotherapy", Faculty of Medicine, MU-Varna.

She is already a recognized expert and one of the leading specialists in our country in the field of Nuclear medicine and especially in nuclear oncology and metabolic therapy, with a contribution to the development and clinical application of new hybrid imaging methods and their inclusion in the overall diagnostic algorithm of a number of socially significant oncological and non-oncological diseases.

Bearing in mind the professional, teaching and organizational experience already accumulated by her, with proven scientific achievements and complying with the Regulations for the development of the academic staff, I consider that she fully meets the requirements of the Law, giving a positive assessment and convincingly recommending to the members of the respected scientific jury to choose the candidate Dr. Zhivka Dancheva Mezan, MD, as "Associate Professor".

Prepared the review:..........

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