

OPINION

by assoc. prof. Kosta Dimitrov Kostov, MD, PhD

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ON the dissertation work of Dr. Dimitrinka Rosenova Dimitrova, for awarding the educational and scientific degree "Doctor" in the field of higher education 7. "Health and sport", professional direction 7.1. "Medicine", scientific specialty "Occupational diseases" " at the "Prof. Dr. Paraskev Stoyanov" Medical University - Varna, on the topic "Occupational risk factors in the epidemiology of stroke" with scientific supervisor Prof. Veselinka Dimitrova Nestorova, MD, PhD.

I was appointed member of Academic Jury on the dissertation of Dimitrinka Rosenova Dimitrova, MD with MU-Varna Rector's order № P-109-35/07.02.2024.

Dr. DIMITRINKA ROSENOVA DIMITROVA was born in 1989 in General Toshevo. She completed her secondary education in 2008. In 2015, she graduated "Medicine" MA programme at Medical University - Varna. In 2021 she earned a specialty in "Neurology". Dr. Rosenova started her career as a resident physician in the Emergency Department of the "St. Anna" Hospital -Varna, where she has been working since November 2015 until 31.07.2016. In August 2016 she began her post-graduate studies at Second Neurological Clinic at University Hospital "St. Marina"- Varna. She began her academic career in 2020, when, after winning a competition, she became a full-time doctoral student in the doctoral program "Occupational Diseases" at the Department of Occupational Diseases, Department of Optometry and Occupational Diseases - MU- Varna, in the professional field 7.1 Medicine.

She has participated in a number of thematic qualification post-graduate courses: Pedagogical competence, Legal framework regulating the education of doctoral students; Research methodology; Research ethics; Statistical methods for data processing and presentation; Communication techniques and presentation skills, etc.

Dr. Dimitrinka Rosenova Dimitrova is fluent in written and spoken English. She has the mandatory ORCID, Google Scholar and Research gate registered profiles and she is a member of the Bulgarian medical association and the Bulgarian Society of Neurology.

The dissertation presented to me is in accordance with the terms and conditions outlined in the ADASRB (Act for the Development of the Academic Staff in the Republic of Bulgaria), RAADASRB (Regulations for the Application of the Act for the Development of the Academic Staff in the Republic of Bulgaria) and the relevant Regulations at MU-Varna. Dr. Rosenova's dissertation is 87 pages long and contains 17 figures, 17 tables and 3 appendices. Its structure includes: list of contents (2 pages), abbreviations (2 pages), introduction (1 page), logically structured literature review (28 pages), purpose and goals (1 page), working hypotheses (1 page), material and methods (4 pages), results (20 pages), discussion (7 pages), opinion (1 page), conclusions (1 page), contributions (1 page), bibliography (11 pages), publications and participations in scientific forums related to the dissertation (1 page) and 5 appendices (7 pages).

The topic of the dissertation is quite relevant because as it is related to a socially significant disease - cerebrovascular disease, one of the leading causes of disability and death, including

working age adults. In recent years, there has been a rejuvenation and a significant increase in strokes, which causes a negative impact on socio-economic development due to affecting people in their most active working age. Occupational risk factors are an invariable part of a person's life, as they have a long-term and high-intensity impact. That is why studies on the role of not only generally accepted and proven vascular risk factors, but also on the influence of occupational hazards and factors of the work environment and the work process are innovative, modern, up-to-date and urgent for the successful prevention, early diagnosis and adequate control of acute cerebrovascular diseases. vascular disorders.

The literary overview is detailed and informative, it is based on 156 literary sources, 2 of which in Cyrillic and 154 in Latin script, and most of the citations being from sources published within the recent 10 years. Dr. Rosenova's review demonstrates broad knowledge in terms of the risk factors for disorders of cerebral circulation. She has summarised data on the effect of non-modifiable and modifiable vascular risk factors. She has done an in-depth analysis of the data on the effects of occupational factors such as stress, working mode, physical and mental work, working posture, factors of the working environment (chemical, atmospheric pollutants with dust and non-dust particles, silicon dioxide, heavy metals, persistent organic solvents and plastic-related chemicals). Dr. Rosenova has studied scientific reports on the effect of work factors on modifiable risk factors for CVD (cerebrovascular disease). A number of insufficiently clarified aspects and still controversial issues have been highlighted, mostly in terms of terminology; etiological and contributing risk factors, including occupational hazards.

Through her comprehensive and detailed analysis of the literature, the postgraduate has pertinently formulated the purpose of the dissertation - "To study the role of occupational risk factors in the epidemiology of stroke, in patients of working age".

In order to achieve this purpose, the postgraduate has defined herself seven specific tasks and formed three working hypotheses. The tasks and hypotheses are logically formulated and correspond to the purpose of the study.

The object of the study is a total of 351 patients, all with a realized acute stroke, of working age. Based on a questionnaire filled out by the patients (containing accompanying diseases, harmful habits, free time, professional route, current workplace, clinical picture), as well as anamnesis taken, physical and neurological status, the following risk factors were applied and analyzed in all patients: immutable - age and gender; modifiable - hypertensive disease, diabetes mellitus, rhythm-conduction disorders, chronic heart failure, ischemic heart disease, other heart diseases, dyslipidemia; behavioral - smoking and alcohol consumption ; professional - total work experience, position, weight, stress, work posture, work movements, work and rest regime, microclimate, mechanical fluctuations (vibrations, noise), dust, chemical hazards, stress. Laboratory tests and CT and/or MRI were performed. The following assessment scales were applied: to assess the level of consciousness - Glasgow-Liege Coma Scale and for the severity of the stroke - National Institute of Health Stroke Scale.

The chosen methodology of the research allows to achieve the set goal and to obtain an adequate answer to the tasks set in the dissertation work. The applied statistical methods provide a complete and reliable assessment of the data, in accordance with the purpose of the presented study.

Dr. Rosenova has well synthesized and visualized the obtained results with tables and figures.

The results prove that among patients with stroke, the working age, the male gender prevails statistically reliably ($p=0.017$). Correlation dependence was established between the long

total working experience (>30 years) (p=0.02), working "mostly physical work" (p=0.011), working "indoors", dynamic work posture (p=0.017), monotonous movements (0.008) and stroke diagnosis. No statistically significant correlation was found between the length of the working day (p=0.84), the level of stress (0.292), the mode of work (p=0.912) and the frequency of stroke among patients. The relative share of stroke patients exposed to physical hazards is significantly higher, without finding a statistically significant correlation between occupational hazards and the diagnosis of stroke (p=0.807).

The discussion of the results highlights their significance by comparing them with other studies in literature. The conclusion summarises the main results of the study. Six clearly phrased conclusions were formulated, providing a succinct summary of the results of the study and fulfilling the set purpose and goals.

I accept the contributions of the dissertation work indicated by postgraduate - three original ones and two affirming.

Dr. Rosenova has published three full-text publications in Bulgarian periodical journals related to the topic of dissertation, for one of which she is first author, she has also participated in six scientific forums.

The abstract of the dissertation is compliant with the requirements, and its content corresponds to the dissertation. There are 17 tables, 17 figures and 3 appendices illustrating the research results.

Conclusion

Dr. Dimitrinka Rosenova Dimitrova's dissertation is an up-to-date, well-structured, conducted and analysed scientific study on the effects and role of occupational risk factors in the epidemiology of strokes in patients of working age. It contains results and conclusions with an original contribution to science and is compliant with all requirements of the ADASRB (Act for the Development of the Academic Staff in the Republic of Bulgaria), RAADASRB (Regulations for the Application of the Act for the Development of the Academic Staff in the Republic of Bulgaria) and the relevant Regulations at MU-Varna.

The dissertation shows that Dr. Rosenova has wide theoretical and clinical knowledge, has qualities and skills to conduct independent valuable studies, which is why I vote with conviction to award the scientific and educational degree "Doctor" of Medicine to Dimitrinka Rosenova Dimitrova MD.

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