STATEMENT

by

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INTERNAL MEMBER OF A SCIENTIFIC JURY
SELECTED BY ORDER No. P-109-165/09.05.24
TO THE RECTOR OF THE MEDICAL UNIVERSITY
"PROF. DR. PARASKEV STOYANOV" - VARNA

Re: The dissertation of Yasen Todorov Petrov MD for awarding the educational and scientific degree PhD in medicine in the field of education 7. "Health and sports", professional direction 7.1. "Medicine", scientific specialty "Physiotherapy, Resort therapy and Rehabilitation" on the topic "A comparative study of the effects of deep oscillation (Deep oscillation) and physical therapy modalities in patients with cervical spondylosis" with scientific supervisor Assoc. Prof. Mariyana Mihaylova Krasteva-Ruseva, MD, PhD.

Biographical data and professional qualifications:

Yasen Todorov Petrov MD was born in 20.05.1994 in the city of Varna, where in 2013 completed his secondary education at the "Dr. Peter Beron" High School of Mathematics. In 2019, he graduated from higher education with an educational qualification degree "Master" in the specialty "Medicine" at the Medical University - Varna.

Petrov's professional medical career began in 2019 at CSMP - an emergency medical care center in the city of Varna. During this period, he also worked as a doctor at the Medical Center for Rehabilitation and Sports Medicine - Varna. In 2020, he started specializing in "Physical and Rehabilitation Medicine" at the Medical University of Varna and was appointed to the position of Assistant professor at the Department of Physiotherapy, Rehabilitation and Sea Therapy at the Medical University of Varna and at the Department of Rehabilitation at the Clinic of Physical and Rehabilitation Medicine of UMBAL "St. Marina" EAD - Varna.

Yasen Petrov builds on his post-graduate training by taking part in a number of courses, such as: Orthopedic Medicine - Syriax, Deep Oscillation, Aromatherapy, Innovative Educational Technologies and others. He has also completed qualification courses in: Methodology of

scientific research work, Ethics of scientific research, Statistical methods for data processing and presentation, Pedagogical competence, Legal basis regulating the training of PhD students, Communication techniques and presentation skills, etc.

The PhD student is proficient in English.

His main professional and scientific interests are in the field of treatment for degenerative joint diseases and sports injuries. He is a member of the Bulgarian Medical Association, the Association for Physical and Rehabilitation Medicine.

Relevance of PhD thesis

Cervical spondylosis is the most common cause of neck pain, it also causes limitations in the movements of the cervical spine, has a negative effect on the psycho-emotional state and impairs the quality of life of the persons affected by the disease. The frequency of this type of pathology is constantly increasing, while the age of patients affected by the disease is decreasing. The lack of appropriate and timely preventive and curative measures can lead to chronicity of the condition and disability.

The existing scientific data regarding Deep Oscillation therapy show that it is a physical factor possessing trophic, anti-inflammatory and anti-fibrotic effects. Numerous clinical studies are available describing the therapeutic effects of the application of the procedure in conditions associated with pain and limited range of motion.

In the dissertation thesis, Yasen Petrov MD presents the use of Deep Oscillation in combination with physical factors for the treatment of patients with cervical spondylosis. The PhD student prospects the clinical effectiveness of the investigated modality, included in complex physical therapy, comparing it with a combination of routine physical factors applied in the treatment of this pathology.

Structure of the PhD thesis

The PhD thesis of Yasen Todorov Petrov is presented in 205 standard pages, in nine sections with an adequate ratio. Illustrated with 62 figures, 46 tables and 8 appendices. The structure is according to the requirements specified in the Regulations for the Development of the Academic Staff of MU-Varna.

The presented bibliography consists of 336 sources, of which 29 are in Cyrillic and 307 are in Latin. About 40% of the citations are from the last decade, and 18% - from the last five years.

A major focus of the literature review is an in-depth analysis of the etiology, pathogenesis, and clinical presentation of cervical spondylosis. The currently known treatment methods applied in physical therapy are presented. The available knowledge on the effect of the applied

therapeutic modalities used in the study is systematized. The main features of Low Frequency Alternating Electrostatic Field Therapy are comprehensively described and the application and clinical experience with Deep Oscillation is presented.

The dissertation work is based on a precise and specific goal - to study the effect of the combined application of Deep Oscillation and some physical factors and to compare it with a combination of routine physical factors used to treat patients with cervical spondylosis.

The tasks and hypotheses are logically formulated according to the preliminary studies and subordinated to the set goal.

The study included 121 individuals of both sexes in the age between 18 and 55 with radiographic evidence of cervical spondylosis who met specific inclusion criteria. Patients were randomly assigned to three treatment groups. Study participants in group A were treated with Deep Oscillation, Transcutaneous Electrical Nerve Stimulation (TENS) and kinesitherapy, in group B patients were treated with Phonophoresis with NSAIDs, TENS and kinesitherapy, and those in group C were treated with placebo – Deep Oscillation, TENS and kinesitherapy.

To monitor the effect of the applied treatment in the three groups, methods were used to assess function and pain in the cervical spine, psycho-emotional state and quality of life: static and dynamic pain assessed by the visual-analog scale, muscle tone by using a special three-point scale which was developed for the study, range of motion in the cervical spine using goniometry, Zung's test for the objectification of the psycho-emotional state, quality of life using the modified Neck Disability Index questionnaire. Patients were assessed at three different time points: at baseline before starting treatment, after completing the course of therapy, and on day 45 after starting therapy.

The PhD student has chosen appropriate statistical methods, giving a complete and reliable assessment of the data, according to the purpose of the presented study.

Results and discussion

The results correspond to the tasks set. The PhD student has well synthesized and visualized with tables and figures the distribution of patients in the three groups and the obtained results.

Before therapy, there was no statistically significant difference between the observed and compared groups in terms of demographic and anthropometric indicators, as well as in terms of subjective complaints. From the analysis of the baseline values of the monitored indicators, it can be seen that there is no difference between the three groups, which leads to their homogeneity with respect to each other.

The results and the discussion are presented in 75 standard pages, well-illustrated with tables and figures, following the progress of the set tasks.

An intragroup comparison was performed to assess the clinical effectiveness of the three therapeutic approaches used after the end of treatment as well as in the long term.

The PhD student presented a comparative analysis between the three groups, proving the superiority of the therapy group including Deep Oscillation in the applied complex of physical factors compared to the other two groups in terms of pain, muscle tone, psycho-emotional state and quality of life.

The discussion on the obtained results highlights their significance by comparing them with other studies in the literature.

Nine clearly formulated conclusions have been synthesized, which briefly and precisely provide a summary of the results of the conducted research and fully meet the set goals and objectives. The researcher has clearly indicated the contributions of the dissertation work - four of a theoretical-methodological nature and two of a practical-applied nature.

The PhD thesis of Yasen Todorov Petrov on the topic "A comparative study of the effects of deep oscillation (Deep oscillation) and physical therapy modalities in patients with cervical spondylosis" presents results and conclusions with an original contribution to science and meets all the requirements of Law on the Academic Staff Development in Republic of Bulgaria (LASDRB), the Regulations for the Implementation of the LASDRB and the regulations of MU-Varna.

The PhD student is researching an innovative method of treatment of the pathology, which is non-invasive, therefore there are no negative side effects. It is well tolerated by the patients because it is painless. Last but not least, the advantage of the method is the shortening of the treatment period and the better efficiency achieved in the application within one treatment course.

Publication related to the thesis

Three full-text publications in periodical scientific journals in the country and abroad are related to the topic of the scientific work, in which Yasen Petrov is the lead author.

Thesis summary

The thesis summary is presented in 85 pages, structured in accordance with the requirements, faithfully and comprehensively reflecting the main points of the thesis.

Conclusion

The presented thesis with topic "A comparative study of the effects of deep oscillation (Deep oscillation) and physical therapy modalities in patients with cervical spondylosis" is methodologically precise, with a clearly formulated goal and tasks, with specific and well-founded conclusions and an up-to-date contribution to science. The materials provided meet all the requirements of the Law on the Academic Staff Development in Republic of Bulgaria (LASDRB), the Regulations for the Implementation of LASDRB and the regulations of the Medical University - Varna.

The thesis shows that the PhD student Yasen Todorov Petrov MD has in-depth theoretical and practical knowledge, demonstrating qualities and skills for independent conduct of scientific research.

I believe that the development of a complex physiotherapy program for the treatment of patients with cervical spondylosis is of great practical importance and can support the work of physiotherapists who have such equipment and deal with the relevant contingent of patients.

Due to the above, I confidently give my positive assessment of the thesis.

I propose to the esteemed members of the scientific jury to award the PhD student Yasen Todorov Petrov MD the educational and scientific degree "PhD" in the scientific specialty "Physiotherapy, Resort therapy and Rehabilitation"

18.06.2024 г.

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/ Prof. Veselinka Dimitrova Nestorova, MD, PhD /