

Review

Prepared by Assoc. Prof. Toni Dankov Avramov MD, PhD,

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In concern with the PhD thesis to be defended by Dr. Mladen Evtimov Ovcharov to acquire the educational/scientific degree “Doctor” in the field Higher education, 7. Healthcare and sport, sector 7.1. Medicine, Specialty 03.01.41 Neurosurgery.

Thesis: “Lumbar disc herniation: clinical aspects and co-relational dependencies in operative treatment”

I am appointed to review this thesis by Faculty of Medicine Meeting decision №35/17.12.2020 and by the Rector’s of MU Varna order №P-109-3/7.01. 2021. The review itself meets all the requirements of the law and MU Varna regulations, concerning the scientific development of the academic staff.

1. Set of documents, papers required and the candidate:

Doctoral candidate Mladen Evtimov Ovcharov, M.D. presents all documents needed (on paper and flash memory), relevant to the requirements of the law and the university regulations, namely: CV, PhD thesis and abstract of the thesis (neatly printed), doctoral exam protocol, order for doctoral enrollment, review – positively estimated at the department, list and copy of publications, notary validated copies of diplomas, department resolutions, etc.

2. Short biographical data:

Dr. Ovcharov is born in 1968. He graduates as Magister in Medicine in 1994 (MU-Pleven). Acquires BC/BE specialty in Neurosurgery in 2001. Since 2009 he is a Magister in Insurance and Social Legislation (Economy and Finance Academy – “D.Tsenov”, Svishtov). From 1995 he is a doctor assistant and later – senior assistant in the Neurosurgical clinic of UMHAT – Pleven. Dr.Ovcharov has undergone specialty courses (1996, 1998 and 2000 years) in the Neurosurgical clinic of “Aleksandrovska” Hospital - Sofia. He has undergone short-term specializations in Milano (2006) and Hamburg (2010). Dr. Ovcharov gives lectures and seminars in Neurology and Neurosurgery for the 4th and 5th year medical students studying in Bulgarian and English languages. He participates in the program Erasmus plus and in the Students practices project. He has published 43 scientific papers, chapters as co-author: ”TBI diagnosis, treatment, prognosis and legal aspects”; Textbooks in Neurosurgery for medical students in English and Bulgarian languages: “Neurosurgery – the most frequent pathologies”, ISBN 978-954-756-186-1 and „Neurosurgery for bulgarian students”, ISBN 978-954-756-249-3. Dr. Ovcharov is a member of the Bulgarian Doctors Union and the

Bulgarian Neurosurgical Society. Foreign languages: Russian (excellent degree) and English (moderate degree).

Dr. Ovcharov has been a BC/BE specialist in Neurosurgery for the last 20 years. Well acquainted with the contemporary diagnostic procedures, highly experienced clinical doctor dealing successfully with the vast pathological variations of the CNS and PNS patients who need conservative or surgical treatment. He is a loyal and creative colleague and takes adequate decisions at moments of urgency and stress.

3. The thesis – actuality and rationale of the tasks:

The candidate finds in the literature that the diagnose LDH is quite often to be found in the practice of neurologists and neurosurgeons, especially in the “era” of constant development of neuroimaging techniques (CT and MRI). Unsatisfactory results after conservative treatment obviously require a proposal for radical (surgical) treatment. Such radical treatment ensures a rapid pain relief and an excellent functional status of the patient. The author discusses the thesis of the “conservative” doctors that within a 5-year follow-up, the clinical outcome of patients in the two cohorts are reciprocal. Dr. Ovcharov draws in front of the brackets the long-year discussion between therapists and spinal surgeons: what is the best option for LDH treatment? To figure out certain answers, the author formulates the thesis, clarifying important pitfalls: setting of the diagnosis and its clinical importance for different surgical treatments, the objectiveness of conservative outcomes right after the treatment, as well as precise estimation of long time (5-years follow – up) patients after radical treatment. Dr. Ovcharov analyzes the professional literature and stresses the fact that in the course of 30 years there is one single dissertation dealing with some aspects of the problem - that of S.Kalevski (2009). He discusses the results and conclusions of it, trying to find continuity of the topic.

Aim and Tasks of the Thesis:

The literature data naturally defines the hypothesis of the topic, which clearly sets the aim – clinical efficacy estimation of the standard open discectomy (SOD) in the surgical treatment of LDH through solving four basic tasks. Dr. Ovcharov includes conservatively and surgically treated patients on the basis of universally accepted criteria, studying and comparing the results with precision. The authors’ operative methods are: SOD and MD (microdiscectomy). Dr. Ovcharov analyzes the effectiveness of different treatment options, drawing conclusions respectively.

4. Structure of dissertation:

PhD thesis is written in 133 standard pages. It includes 69 figures and 48 tables. Excellent Bulgarian language in academic style is used. Classical outer appearance includes: introduction, literature survey (10 pages), aim and tasks, materials and methods (14 pages), results (59 pages), discussion (22 pages), conclusions and contributions. List of publications in concern with the thesis are: two chapters in the upper mentioned Textbook of

Neurosurgery, two publications in J. Biomed Clin Res and one publication in Republican Scientific Forum, 179 titles in the Bibliography.

After short introduction discussing the nature of the problem, the classical LDH clinics, the basic question is set: what is the best option for LDH treatment?

Literature survey is structured as follows:

1. Chronological review of the problem.
2. Contemporary literature data – survey.
3. Important literature data from the last 15 years (up to the 90s there are not significant literature data on the topic).
4. Literature data – conclusions.

“Friendly” with the problem:

The doctor’s candidate shows profound knowledge on the topic. Dr. Ovcharov summarizes and draws theoretical conclusions based on 179 titles in specialized literature, thoroughly analyzed. Data out of it is correctly interpreted, that is an indispensable condition to perform the scientific tasks successfully.

Materials and methods:

Object of investigation are 589 surgically treated and 95 conservatively treated patients in the Neurology clinics of the Neurology and Neurosurgery department of MU-Pleven. Inclusion criteria are thorough and precise, review of outcomes is all embracing. The “instruments” - Visual Analogue Scale (VAS) for pain, post-operative self-estimation of the patients using the MacNaab scale, the functional disability according to ODI, post-operative complications using the Clavien-Dindo classification render precision in discussing the clinical results. MRI Phirman scale for the status of the intervertebral discs helps standardizing neuroimages. It all helps to better comprehend the problem. Statistic methods make results significant.

5. Characteristics and valuation of dissertation:

Dissertation structure and contents lawfully fulfill the needed requirements for defending the educational/scientific degree of Doctor. PhD thesis is professionally structured, written in plain academic style with clear concrete statements. Arrangement of contents reveals the author’s abilities to figure out the chronological review of the topic, the obtained results in a

logical manner. On this steady basement he makes important conclusions with scientific, theoretical and practical values. Conclusions and contributions are discussed.

6. Results and discussion:

On 81 pages diagnostic, clinical data, all along with objective post-operative (SOD and MD) and conservative treatment results are presented, all of them supported by comprehensive tables (including cases of co-morbidities) and figures. Differences in the self-esteemed status (according to MacNaab) are underlined in favor of those patients operated within 3 months after unsatisfactory conservative treatment. Re-operations within 30 days after the original surgery are in the scope of literature data. The index ODI makes impression showing minimal dysfunction (0-20 %) in 493 patients at the first post-operative year and in 90 patients at the 5th post-operative year. Early effectiveness analysis favors the surgically treated patients. Statistical methods objectively confirm the results.

Under discussion are: the topic, literature data, methods used and the results. The need of future randomized prospective studies is not debatable. Results concerning surgically treated patients are objective and statistically valued. Literature cited give grounds for comments concerning: predispositions for early post-operative re-herniations, the negative effect of nicotine and alcohol, rejection of regime prescribed in respect to the outcome. Modes of surgical methods are also discussed. Need for additional operative tactics, mainly performing fusion, bears greater risk for aseptic inflammation versus theoretical advantages. Future investigation without a financial interest would enlighten the problem, all the way taking into consideration our knowledge on spinal biomechanics, Dr. Ovcharov concludes.

7. Contributions of this paper are scientific/practical. They are:

- LDH patients' file should contain standardized data.
- Proposal for MRI/Phirman Grading Scale estimation of the intervertebral disc.
- Proposal to fix post-operative complications after Clavien-Dindo classification is made for the first time in the country.
- Introduction of VAS, ODI, MacNaab complex criteria makes the post-operative estimation of the outcomes ultimately precise.

8. Doctor's personal participation:

Taking into consideration all the papers, publications, I should undoubtedly presume that this PhD thesis is a result of correct and proper professional and personal work of the doctoral candidate.

9. Abstract:

Abstract's structure and contents under review are perfectly relevant with the law. Doctoral candidate Mladen Ovcharov, M.D. presents five real publications (first author) which are fully relevant with MU-Varna academic staff development regulations. All of these publications discuss different stages of dissertation thesis.

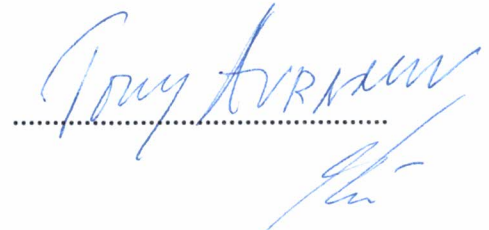
Conclusion:

This PhD thesis displays results of scientific applicability in the neurosurgical practice. It meets all the requirements of the law and MU-Varna regulations, systematizing and enriching the neurosurgical theory and practice in the country. Therefore I strongly recommend awarding Dr. Mladen Evtimov Ovcharov with the educational/scientific degree "Doctor" based on the upper mentioned facts.

09.02.2021

Prepared by Assoc. Prof. Toni Dankov Avramov MD, PhD:

Varna

A handwritten signature in blue ink, reading "Toni Avramov", is written over a horizontal dotted line. Below the signature, there is a small, illegible mark.