

Review – Opinion

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In concern with the PhD thesis: "**Lumbar disc herniation, clinical aspects and correlational dependencies in operative treatment**", to be defended by Dr. Mladen Evtimov Ovcharov to acquire the educational/scientific degree "Doctor" in the field 7. Healthcare and Sport, Sector 7.1. Medicine; doctoral program "Neurosurgery".

I am appointed to produce review – opinion of this thesis as member of scientific Jury after the Rector's of MU Varna order № P-109-3/7.01.2021.

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. 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 diagnose, 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 „Неврохирургия за студенти по медицина“, 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). Experienced specialist in the field, he is well acquainted with the contemporary diagnostic procedures (CT, MRI); performs modern conservative and highly specialized surgical treatments to various CNS/PNS pathologies. Creative doctor, loyal colleague, he is always trying to be perfect in his duties.

The thesis – actuality and rationale

Dr. Ovcharov figures out that the diagnose LDH is found quite often in the neurological and neurosurgical practice. Even more often in the last decade, all along with the rapid development of the neuro-imaging methods (CT, MRI). Other specialists – orthopedic surgeons, physiotherapists are constantly trying to find their

place to treat this pathology. Unsatisfactory results after conservative treatment naturally acquire proposal for operative treatment. Operation itself ensures rapid pain relief, restoring functional status at the same time. The author finds an interesting fact, concerning the conservative opinion that the 5 years outcomes (operatively and conservatively treated) are nearly reciprocal. So the discussion "What is the best treatment of LDH" is perpetually ongoing. This question continues to be a current topic of interest and it is worthwhile to give an answer to it. Dr. Ovcharov formulates the thesis, setting exact tasks in front of him to deal with. Interesting fact is that he finds one single dissertation, dealing with the problem – that of S. Kalevski (2009).

Dissertation – structure:

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, sets the basic question: what is the best option for LDH treatment?

Literature survey is to greater extent educational, containing in itself 1. Chronological review of the problem. 2. Contemporary literature data – survey. 3. Important literature data from the last 15 years (up to the 90's there are not significant studies found in the specialized literature). 4. Literature data – conclusions.

Aim and tasks: To define work hypothesis is natural continuation of literature data analysis. So a clear aim is set – to figure out the clinical effectiveness of SOD (standard open discectomy) in the operative treatment of LDH. 4 tasks are to be fulfilled. "Inclusion instruments" are defined. Mode of treatment is investigated. The operative methods are SOD and MD (microdiscectomy). Effectiveness of clinical outcomes is analyzed.

Material 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 neuro-images. It all helps to better comprehend the problem. Statistic methods make results significant.

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.

Conclusions logically reflect the literature data analysis and the fulfillment of the tasks.

Contributions of this dissertation are scientific/practical; namely 1. Original idea is to introduce the MRI estimation of the intervertebral disc according to Phirman scale. 2. Post operative complications according to Clavien – Dindo classification is introduced for the first time in the country.

Conclusion:

PhD thesis: "**Lumbar disc herniation - clinical aspects and co relational dependencies in operative treatment**" contains in itself results of scientific and applicable character. It meets all the requirements of the law and MU Varna regulations. It renders systematic, theoretical and practical knowledge to the neurosurgical practice in our country. So I recommend to the Jury to award educational/scientific degree "Doctor" to Mladen Evtimov Ovcharov, as I will give my positive vote with undoubted confidence!

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