

REVIEW

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on the dissertation titled **"Intrapartal Pelvic Floor and Perineal Injuries – Risk Factors and Prevention"**

for awarding the academic and scientific degree "Doctor"
Specialty 03.01.45. "Obstetrics and Gynecology".

Author: Dr. Dimitar Lyubchov Cvetkov

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Biographical Data and Career Development

Dr. Dimitar Lyubchov Cvetkov was born in 1978. He graduated in Medicine from Pleven Medical University in 2003. He obtained his specialization in Obstetrics and Gynecology in 2011. From 2012 to 2024, he held the position of obstetrician-gynecologist, specialist in reproductive medicine at the Women's Health Hospital "Nadezhda" in Sofia. Since 2024, he has been working at In Vitro Vita at "Vita" Hospital in Sofia, as the head of the In Vitro Center. He completed a specialization at the University Clinical Center in Ljubljana, Slovenia. Dr. Dimitar Cevtov is fluent in written and spoken English, Slovenian, and Serbian. He is a member of the Bulgarian Medical Union, ESHRE, ESGE, GCH, and FIAPAC.

Relevance of the Dissertation

The dissertation developed by Dr. Dimitar Cvetkov comprises 116 pages, including 5 tables, 28 figures, and 4 appendices. The bibliography includes 215 sources, of which 210 are in Latin script and 5 in Cyrillic. The related publications are four in number. The overview has good cognitive value. Perineal tears during childbirth are a problem affecting millions of women worldwide annually. The frequency of perineal injuries depends on various obstetric practices, including the frequency and type of episiotomies performed. The overall risk of intrapartal anal sphincter injury (IASI) is 1% of all vaginal deliveries. Additionally, occult anal sphincter injuries (detected only through endoanal ultrasound) occur in 33% of primiparous women following vaginal birth.

The clearly formulated goal of the dissertation is:

To establish the actual frequency and severity of intrapartal injuries of the pelvic floor, the risk factors for their occurrence, and methods of prevention and treatment.

To achieve this goal, the researcher identified five tasks:

1. To determine the true frequency of anal sphincter injuries via imaging methods for early diagnosis (endoanal ultrasound).
2. To formulate the problem of intrapartal pelvic floor injuries as a cause of frequently occurring fecal incontinence in middle-aged women.
3. To assess the influence of the most common risk factors and their severity on the occurrence of occult intrapartal anal sphincter injuries.
4. To investigate changes in the duration of the second stage of labor as an independent risk factor for pelvic floor tearing, after the application of a medical device (obstetric gel).
5. To develop an algorithm for prevention, diagnosis, timely treatment, and follow-up of intrapartal pelvic floor injuries.

A retrospective study was conducted over the period 2009–2014, involving 203 patients treated across four hospitals: UHAT "Dr. Georgi Stranski" – Pleven, Bulgaria; Women's Health Hospital "Nadezhda" – Sofia, Bulgaria; University Clinical Center Ljubljana, Slovenia; and Gynecology-Obstetrics Department, General Hospital – Trbovlje, Slovenia.

The data from the two foreign hospitals were collected and analyzed personally by the doctoral candidate during an Erasmus exchange program for doctoral students between MU – Pleven and University Clinical Center – Ljubljana during 2008/2009 and 2010/2011, as well as in the Gynecology-Obstetrics Department of the General Hospital – Trbovlje, Slovenia, from January to June 2012, while working as a specialist.

The methodology section of the dissertation is clearly presented. Data from the patient groups are well-organized in tables and charts.

In the conducted study, after performing endoanal ultrasound, the frequency of occult anal sphincter injuries (OASI) was found to be 25.4%, or in 16 out of 63 patients. All these injuries were classified as IIIA or involving less than 50% of the total thickness of the external anal sphincter. In five of these patients (5/16), occult injuries were detected. The delivery in these cases was assisted with vacuum extraction, which emerged as an independent risk factor for pelvic floor tears.

In 79.4% (50/63) of the patients, there was no clinical symptomatology, while in the remaining 13 (20.6%), subjective problems with gas retention of transient nature were observed.

Among the 13 patients with pronounced clinical symptoms of anal incontinence, occult injuries were also detected. The researcher established that the most common clinical symptoms of difficulty in gas retention during the first days after delivery are often accompanied by anatomical damage to the anal sphincter complex – in 76.9% (10/13).

The performed logistic regression analysis showed that the examined independent variables are risk factors for the occurrence of OASI: primipara (OR 6.00; CI 4.23 – 15.35), gestational age > 41 weeks (OR 8.50; CI 5.32 – 19.73), and fetal weight > 4000g (OR 11.34; CI 6.54 – 22.37).

An extended second stage of labor is one of the main risk factors for the occurrence of OASI. Shortening the expulsion period through the application of obstetric gel can significantly reduce the frequency of such birth traumas, alleviate fear and discomfort for the women during labor, and

minimize late complications of birth trauma, such as anal and urinary incontinence, changes in the support structures of the pelvic organs, sexual dysfunction, and ultimately, deterioration in quality of life.

The scientific work of Dr. Cvetkov concludes with 11 findings on the topic. These conclusions are substantive, align with the goals set, and fully demonstrate the achievement of the scientific objective. In the section "Contributions," the dissertation author divides the contributions into two categories: scientific-theoretical significance and scientific-practical significance, and I would like to highlight some of them:

For the first time in Bulgaria, endoanal ultrasound has been applied, which is a rapid, non-invasive, highly specific, and reliable method for early diagnosis of intrapartum pelvic floor injuries in obstetric practice. The applied methodology is objective, comparable, and standardized for the diagnosis of OASI(occult anal sphincter injuries).

The proven positive impact of the use of medical devices (obstetric gel) in preventing intrapartum pelvic floor injuries, by significantly shortening the second stage of labor. This offers a new opportunity to reduce their frequency and severity, and consequently, the late consequences of undiagnosed or inadequately recovered injuries.

The developed practical algorithm for prevention, diagnosis, treatment and follow-up of patients with IPTD has practical application in the field of obstetrics.

In conclusion: Dr. Dimitar Tsvetkov's dissertation has an important scientific and practical contribution. The author emphasizes that the frequency of occult perineal injuries is a relatively common pathology during vaginal delivery. Often, these injuries are not diagnosed in a timely manner and are inadequately classified by severity. Several risk factors for their occurrence have been identified, as well as appropriate clinical practices to reduce the risk of pelvic floor injuries.

In the perspective of increasing frequency of cesarean sections, this pathology will become increasingly rare, more difficult to diagnose. Delayed surgical treatment and subsequent poor recovery results with the development of anal or fecal incontinence will lead to a deteriorated quality of life of patients. Through the prepared clinical behavior algorithm, adequate treatment can be carried out, which is the basis for rapid recovery and timely rehabilitation of possible early and late complications.

The scientific work meets the requirements for awarding the academic and scientific degree of "Doctor," in accordance with the Regulations of MU – Varna.

I give a positive assessment of the scientific work and recommend to the esteemed scientific jury to award Dr. Dimitar Lyubchov Cvetkov the academic and scientific degree of "Doctor" in the specialty Obstetrics and Gynecology.

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