

# REVIEW

from

Prof. Dr. Petar Hristov Petrov, PhD, Director of the Research Institute of Medicine - VUARR Plovdiv, Head of the Department of „ Obstetrics, Gynecology, Reproductive Medicine, Maternal and Child Health“, 4000 Plovdiv, 78 Dunav Blvd., tel. 032 394476, GSM 0878220665, e-mail: prof.petrov@abv.bg

of

the dissertation of Dr. Zhivko Stoyanov Zhekov on the topic: "**METHODS FOR TERMINATION OF PREGNANCY IN OBSTETRICS AND GYNECOLOGICAL PRACTICE**", presented for the acquisition of the scientific degree "Doctor of Medicine" in the field of higher education. direction 7.1. Medicine, in the scientific specialty "Obstetrics and Gynecology".

In accordance with the requirements of the Law for development of the academic staff in the Republic of Bulgaria and the Regulations for its application, as well as with the Regulations for development of the academic staff at the Medical University - Varna the doctoral student Dr. Zhivko Zhekov presented all necessary materials.

## **Biographical data of the candidate:**

Dr. Zhivko Stoyanov Zhekov was born on October 26, 1961 in the city of Varna. In 1987 graduated in medicine at the Medical University - Varna. Acquired a degree in Obstetrics and Gynecology in 1993. Since 2016 is the head of the gynecology clinic

at SBALAG 'Prof. Dr. Dimitar Stamatov' EOOD, Varna. In 2018 is enrolled as a doctoral student in an independent form of study.

### **Structure of the dissertation**

The dissertation of Dr. Zhivko Zhekov is dedicated to the current problem of abortion in obstetrics and gynecology. The topic is interesting and extremely relevant, given the data on the high rate of abortions in our country.

The dissertation is written on 150 pages, contains 72 graphs and 25 tables. The bibliography includes 207 sources, of which 33 are in Cyrillic and 174 are in Latin. The dissertation is structured according to the classical model and includes: Introduction - 3 pages, Literature review - 47 pages, Aim and tasks - 2 pages, Material and methods - 6 pages, Results from own research - 50 pages, Conclusion - 3 p., Conclusions - 2 p., Contributions of the dissertation - 1 p., Appendices - 3 p., Publications and participations in connection with the dissertation - 2 p., Book writing - 20 p.

The dissertation is written in correct Bulgarian.

### **Literature review:**

From the in-depth literature review, which uses current, significant and contemporary literature sources, a total of 207 titles provide a comprehensive picture of the state of the studied problem. It is clear, on the one hand, that abortion is the most common gynecological procedure. Worldwide, more than 56 million abortions are performed annually, 88.0% of which are in developing countries. In percentage

abortions in the second trimester represent 10.0 - 15.0% of all abortions. The author emphasizes the fact that abortion should not be against the law and should be performed safely. On the other hand, the review made by Dr. Zhekov on the Bulgarian medical literature did not find large-scale, scientifically significant studies conducted in our country, examining in detail the modern methods of abortion. The doctoral student emphasizes that surgical abortion is one of the most common causes of gynecological diseases, infertility and miscarriage.

Dr. Zhekov stands behind the thesis that as an alternative to surgical abortion is medical. Emphasizes that the idea of medical abortion is old, but the development of methods for its implementation, based on scientific evidence, became possible only in the late twentieth century after the creation of the molecule Mifepristone (RU-486), developed in France in 1970-1980 by researchers involved in the study of glucocorticoid receptors.

The literature review made by the doctoral student on the topic fully motivates the need to conduct the current research.

### **Aim and tasks:**

Based on the data in the literature and the accumulated research experience on the researched problem, Dr. Zhekov clearly formulates the purpose of the study, namely to perform a comparative analysis of the used surgical and medical methods of abortion in modern obstetric and gynecological practice and to optimize the criteria for application of the procedures during the I and II trimester of pregnancy.

The tasks in total are six correctly selected and well structured to achieve the set goal.

## **Material and methods:**

Patients are selected based on whether they have induced abortion in the first or second trimester, as well as according to the type of abortion - MA or HA. Two pairs of groups were formed - for the I trimester (MA I, VA), for the II trimester (MA II, D&E). The Odds Ratio (OR) measured the strength of the impact of the studied factor - the type of abortion. Exposure and result measurements are performed at different times. The study is based on the epidemiological approach and is experimental-theoretical. Before collecting data on the subject of the study - patients with pregnancy in the I and II trimesters, there is an immediate impact. The study is retrospective and prospective. The epidemiological study is observational, analytical - cohort type. The natural development of the studied phenomena - manifestation of early and late complications after exposure - termination of pregnancy by medical or surgical method, MA and HA (VA, D&E) was followed. The frequency was determined and the interrelationships between the applied method of abortion and the subsequent effect of complications were analyzed.

## **Results from own research**

A solid array of well-documented survey data was obtained and analyzed. For the period from 2013 to 2018 in SBAGAL "Prof. Dr. D. Stamatov" - Varna and MHAT" St. Anna "- Varna performed  $\approx 2590$  medical and surgical abortions during the I and II trimester (MA, HA). From the literature data it was established that the estimate for the relative share in the general population for the parameter completed abortion (chosen as the main one) is at least 87.0%.

With a confidence probability  $p = 0.05$  (95.00%), a confidence factor  $z = 1.96$ , a maximum permissible error rate  $\Delta p = 3.0\%$  and a general population volume  $N = 2590$  using a formula to determine the volume of sample to estimate the relative share calculate a sample size of 420 abortions, randomized in four cohorts, two for each trimester: 140 MA I / 140 VA; 70 MAII / 70 D&E. The groups were compared by age of patients, gestational week in which the abortion was performed, parity, mode of delivery (p.n, SC), history of previous abortion and number of abortions, history of previous vaginal infection and indications for termination of pregnancy (by demand and medical).

The structure of the compared groups for the two trimesters is approximately the same. All manipulations related to abortion were performed in accordance with the principles of the Declaration of Helsinki and patients gave informed consent after a detailed explanation.

In the summarized discussion an in-depth analysis of the obtained data was made. The section is structured according to the scheme for obtaining the data, which allows logical reaching of the conclusions.

Priority is given to the data showing that medical abortion in the I and II trimesters is highly effective (91.4. 95.7% completed abortion) and safety, requiring time to expel the uterine contents - an average of 7 hours (I trimester) - 8 hours (II trimester). At the same time, Dr. Zhekov notes that the relative share of early complications in medical abortion in the first trimester is two to three times higher than in vacuum aspiration.

It is noteworthy that the study argued that the use of medical abortion in the second trimester is associated with a reduced risk of infertility.

New for our literature are the data that the use of medical abortion is associated with lower labor costs (1.8 times) and equal stay of patients in the hospital compared to surgical abortion.

The doctoral student found that the efficiency of vacuum aspiration in the first trimester is high - 97.1% complete abortion, incomplete abortion 0.7%. It is fast ( $\approx$  15 min) and safe procedure.

The studies performed and the results obtained send clear signals for two to three times less relative share of early complications in vacuum aspiration compared to medical abortion in the first trimester, and also that the risk of hematoma and endometritis is higher when applying vacuum aspiration in the I trimester in comparison with medical abortion.

### **Conclusions:**

The 8 conclusions correctly reflect the obtained results. The eighth conclusion is very impressive, which clearly reflects the real danger of the use of surgical abortion through dilatation and evacuation, associated with a higher relative risk of infertility and late complications. Risk factors for these late complications include previous vaginal infection, abortion, and a cesarean section.

### **Contributions:**

The dissertation has clearly defined 8 essential contributions, which it divides into two groups: original and confirmatory. Contributions of an original nature really reflect what has been achieved for the first time in science. From them I would like to emphasize conclusions 2 and 3, namely: An optimized approach is proposed in

the selection of patients for termination of pregnancy - vacuum aspiration for I trimester, medical abortion - for II trimester for patients without risk, and dilatation and curettage for patients at risk (two or more abortions or cesarean sections).

An algorithm for the application of Topogyne in medical abortion in the second trimester has been implemented.

The abstract is presented in the dissertation with a volume of 56 pages. contains all the basic data and messages of the dissertation and is perfectly illustrated, with the volume of a small monograph.

**Publication activity:**

The results of the dissertation are reflected in 3 publications in which Dr. Zhivko Zhelev is the 1st author, which speaks of the leading role of the doctoral student in his research. The dissertation has not presented participation in a congress with reports on the topic of the dissertation, but I am sure that based on the rich scientific material created, this will be the next step in his scientific work.

All of the above shows that the present work is the personal work of the author and there is no evidence of plagiarism.

**Conclusion:**

The dissertation presented by Dr. Zhivko Zhekov is an in-depth scientific study of methods for abortion, reflecting in detail the pros and cons of each of them. The work is dedicated to a topical and significant problem of modern medicine. The research is original and contributing in this area. The analysis of the data related to

the scientific development shows that they meet the recommended scientific criteria of MU - Varna for defense of the dissertation.

Dr. Zhivko Zhekov is a researcher and clinician with the necessary qualifications, with good theoretical and methodological training, original scientific approaches, excellent and organizational qualities. I am of the opinion that the results of his research will be recognized by our scientific community.

With this opinion I express my deep conviction that the dissertation of Dr. Zhivko Stoyanov Zhekov fully meets the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for its implementation, as well as the requirements of the Regulations for the Development of Academic Staff in MU - Varna.

I recommend the esteemed members of the specialized scientific jury to vote positively for the defense of the dissertation of Dr. Zhivko Stoyanov Zhelevi to award him the educational and scientific degree of "Doctor of Medicine".

12.04. 2021

Plovdiv

prof.dr. Petar Petrov, PhD