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REVIEW

by Assoc. Prof. Zhivko Stoyanov Zhekov, MD

Department of Obstetrics and Gynecology at MU - Varna

regarding

a competition for the academic position of "Associate Professor" in professional field 7.1. Medicine, specialty Obstetrics and Gynecology, announced in the State Gazette No. 101/ 29.11.2024, for the needs of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna

to Dr. Simona Anzhel Georgieva, MD

EVALUATION OF CONTRIBUTIONS

Personal contributions can be grouped into the following areas:

I. Contributions related to the dissertation on the topic: "Ovarian response, embryo quality and ectopic pregnancy"

In her dissertation, Dr. Georgieva examines a current problem in reproductive medicine. Ectopic pregnancy is a potentially life-threatening condition with a frequency of about 2% in the general population up to 8% according to some sources after IVF / ICSI. In recent years, the efforts of specialists have been mainly aimed at improving the conditions and techniques for performing assisted reproductive technologies in terms of high success rates, safety and reducing the risk of complications.

The relationship between tubal infertility and ectopic pregnancy is well emphasized. Aspects of multiple embryo transfer associated with an increased risk of complications such as multiple and ectopic pregnancy are examined. All aspects of ART procedures such as the day of embryo transfer, fresh or thawed transfer are studied and the relevance of the introduction of the elective single embryo transfer (eSET) procedure worldwide as a risk reduction measure is emphasized. For the first time, the influence of ovarian response and the prognostic potential of embryo quality on the likelihood of developing ectopic pregnancy is investigated.

The aim of the study is to investigate the influence of ovarian response, embryo quality and the outcome of ART, in particular ectopic pregnancies.

A statistically significant relationship was established between the level of ectopic pregnancy and women with a tubal factor of infertility: $\chi 2\ (1) = 15.84$; $p < 0.001$. In accordance with the literature, it was established that with an increase in the number of transferred embryos, the likelihood of ectopic

pregnancy also increases. Improving embryo quality increases the likelihood of intrauterine pregnancy by 2.32 times. Embryo transfer of a high-quality embryo results in a higher number of live births, while embryo transfer of poor morphology results in a higher number of ectopic pregnancies. Poor-quality embryos lead to lower implantation rates and live births. An equation has been derived to calculate the probability that a woman of a certain age will develop an ectopic pregnancy. An additional analysis of all factors related to ART has been performed using multivariate analysis, where it has been shown that the same factors retain their statistical significance. Protocols have been proposed to optimize each stage of ART, especially in patients at high risk of complications, in order to reduce the likelihood of ectopic pregnancy, such as reducing the number of embryos transferred, and in most cases the best choice is to transfer a single embryo with the best morphology.

II. Contributions in other thematic areas not related to the dissertation work:

1. Optimization of stimulation and preparation protocols before embryo transfer to increase the levels of clinical pregnancy and live birth.
2. Clinical behavior in early complications and long-term consequences of complicated ART procedures with protocols for timely diagnosis and treatment.
3. The influence of ART treatment in the psychological aspect and its reflection in the cultural, emotional, social and medical aspect of the couple is studied;
4. Prenatal diagnosis and behavior in early detection of markers associated with chromosomal abnormalities and complications in twin pregnancy
5. Pregnancy and infectious diseases;
6. Pregnancy and concomitant AG pathology;
7. Innovations in endoscopic surgery;

III. Contributions related to the monographic work on the topic: "Follow-up of pregnancies after assisted reproductive technologies – risks, complications and recommendations for prevention"

The presented monographic work by Dr. Simona Anzhel Georgieva, MD, examines a particularly relevant problem for Bulgaria in relation to the quality of modern antenatal care. It is accepted worldwide that after the first trimester, the follow-up of pregnancies after IVF should continue outside the IVF clinics, which requires good knowledge of various aspects of ART procedures among obstetricians and gynecologists in hospital and outpatient care in relation to the proper management of these patients. In order to ensure adequate prenatal care, it is necessary to systematize and analyze some aspects of ART procedures that put the health of the mother and fetus at risk, which is presented in great detail in the monographic work. Protocols for monitoring pregnancies for the purpose of prevention, early detection and treatment of complications are proposed. Aspects of preparation and

treatment during ART procedures are examined, as well as specific mechanisms that put pregnancy at risk of complications such as preeclampsia, placental abruption, and premature birth.

The association of IVF with congenital malformations, chromosomal diseases, and neurological abnormalities in postnatal life is analyzed.

The topic of possible mechanisms for influencing epigenetics through assisted reproduction methods is also of interest.

In her monographic work, Dr. Georgieva develops problems that are undoubtedly relevant to modern AG practice and fills a gap that has existed in recent years in the specialized literature.

SCIENTIFIC RESEARCH ACTIVITY

The candidate submits for the competition a dissertation on the topic: **"Ovarian response, embryo quality and ectopic pregnancy"**, a monograph on the topic **"Follow-up of pregnancies after assisted reproductive technologies - risks, complications and recommendations for prevention"**, as well as **25** full-text publications in domestic and foreign scientific journals that meet the regulatory requirements.

Participation in courses

Dr. Georgieva's professional interests are in the field of assisted reproductive technologies and embryology, endoscopic surgery and ultrasound diagnostics in obstetrics and gynecology, for which she has the relevant certificates.

1. 2017 - Course on Ultrasound Diagnostics in Obstetrics and Gynecology Practice, SBAGAL Varna, Medical University of Varna, Certificate No. 106-2392
2. 2017 - Theoretical and practical training in the field of fetal morphology under the project "Improved quality of prenatal diagnostics and neonatal care" SBAG Sofia,
3. Certificate No. 70 of 20.10.2017
4. 2019 - Certified clinical embryologist at the European Society of Human Reproduction and Embryology (ESHRE)
5. 2022 – Diagnostic laparoscopy in gynecology – Level I – Certificate No. 109/02/12/2022
6. 2023 – Diagnostic and office hysteroscopy – Level I – Certificate No. 28/24/02/2022
7. FMF Certificate of competence and license on "11-13 weeks scan", 17.12.21
8. FMF Certificate of competence and license on "Preeclampsia screening", 17.12.21
9. FMF Certificate of competence and license on "Cervical assessment", 20.12.21

Curriculum vitae

Dr. Georgieva graduated with honors in medicine in 2016 at the Medical University - Varna and in the same year was enrolled as a specialist in obstetrics and gynecology with a training base - SBAGAL Varna. Since 2019, she has been an assistant at the Department of Obstetrics and

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Gynecology of the Medical University - Varna and won a competition for full-time doctoral studies. In 2021, she obtained the scientific degree "Doctor" with a dissertation on the topic "Ovarian response, embryo quality and ectopic pregnancy". Since 2022, she has held the academic position of "Chief Assistant" at the Department of Obstetrics and gynecology. In 2024, she published a monograph on the topic "Follow-up of pregnancies after assisted reproductive technologies - risks, complications and recommendations for prevention". Since 2014, she has been training, and subsequently became a member of the team of the Medical Center for Assisted Reproduction (MCAR) "Varna", where she currently works.

Scientific and professional interests are focused on the field of assisted reproductive technologies, high-risk pregnancies, early pregnancy complications and the impact of ART on postnatal development.

Conclusion

The presented materials correspond to the high theoretical and scientific training of Dr. Simona Anzhel Georgieva. The number and subject matter of the scientific publications, the pedagogical and practical experience of Dr. Georgieva fully meet the criteria for holding the academic position of "Associate Professor", therefore I recommend to the members of the Scientific Jury to vote positively.

Date: 14.03.2025

Prepared by:

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