

Editors:

Prof. Ferenc Bari, Zsuzsa Mező, Iván Devosa Ph.D.

“DAL 16”

**16th Annual Meeting of the
Egon and Ann Diczfalusy
Foundation**

**Program and abstracts of the international conference
19th -21st September 2024 Szeged, Hungary**



Locations:

ART Hotel Szeged
(6720 Szeged, Somogyi str. 16.)



Hands-on trainings – Skill Center
(6720 Szeged, Szőkefalvi-Nagy Béla str. 6.)



Organizer:

EGON AND ANN
DICZFALUSY
FOUNDATION



Egon and Ann Diczfalusy Foundation

Sponsors:



GEDEON RICHTER

Health is our mission



ISBN & Availability:

ISBN 978-615-6448-50-7

The book has already been registered in MTMT.
Free download visiting <http://devosa.hu/books> or QR code:



Publisher:

Chair of Egon and Ann Diczfalusy Foundation

Cover:

©2020-2024 Egon and Ann Diczfalusy Foundation

Format:

Portable Document Format (PDF) 1.4, for long-term
preservation PDF/A-1 (ISO 19005-1) v. 2.1

Program

Venue- Hotel Art

Thursday 19th September

09:00- 10:45	Registration
10:45- 11:00	Opening ceremony Chairs: Ferenc Bari, János Annus
11:00- 11:15	Diczfalussy Award Lecture: Laudation
11:15- 12:00	Kristina Gemzell Danielsson (Stockholm) Contraception-a contraceptive continuum
12:00- 13:00 13.00- 13.30	Lunch break Board meeting for members

Scientific Session - Part 1	Chairs: György Bártfai, Ana Mitrovic
13:30-14:15 Keynote talk 1	Micheline Misrahi (Paris) Genetics of female infertility: a leap in diagnosis and application to

	personalized medicine
14:15-14:30	Ana Mitrovic (Beograd) Infertility treatment and ART in Serbia - where are we now
14.30-14.45	Péter Földesy (HUN-REN) Non-contact assessment of newborn and preterm infant activity levels, behavioral states, and sleep-wake cycles in Neonatal Intensive Care Units
14:45-15:00	Peter Koliba (Prague) Sex education among teenagers
15:00-15:15	Emese Huszar (Univ. Pecs) Sexual education from medical students point of view
15:15-15:30	Brenda Bernad (Timisoara) Interventions to improve youth sexual and

	reproductive health in Romania
15:30-15:50	Coffee break
15:50-16.20	Poster Session

Scientific Session - Part 2	Chairs: Aleksandra Vejnovic, Peter Koliba
16:20- 16:35	Elena Bernad (Timisoara) HPV vaccination program in Romania
16:35- 16:50	David Archer (Virginia) Development of an Oral on Demand female contraceptive
16:50- 17:05	Dieter Bettelheim (Vienna) Invasive prenatal diagnostic procedures
17:05- 17.20	Presentation supported by ORGANON Szabolcs Várbiró The importance of the personalized contraceptive counseling
17.20- 17:35	Presentation supported by ORGANON Béla Benczúr

	Challenges in periprocedural anticoagulation management
17:35-17:50	Petru Chitulea (Romania) Myomectomy during scheduled Cesarean section case report
17:50-18:05	Giovanni Grandi (Italy) 2024 Young Researcher Award Lecture
19:00-21:00	Reception (Central Building, SZTE)

Friday 20th September

Innovation in reproductive research in Hungary A joint symposium organized by the Richter Reproduction Network and the National Laboratory on Human Reproduction Chairs: György Thaler, Dieter Bettelheim	
08:30 – 08:40	Zsolt Szombathelyi (Richter Plc.) The new innovation eco-system of Richter. The Richter Reproduction Network.
08:40 – 09:00	Gábor L. Kovács (University of Pécs) The National Laboratory on Human Reproduction of the University of Pécs: the research core-facility of Richter Reproduction Network.
09:00 – 09:20	Kálmán Kovács (University of Pécs) Clinical dimensions of female infertility in Hungary.
Pillar-1 Non-invasive embryo diagnostics	
09:20 – 09:40	Gábor L. Kovács (University of Pécs)

	Non-invasive genetic and biomarker research using the spent medium: a new approach to embryo viability assessment.
09:40 – 10:00	Katalin Gombos, Attila Gyenesei (University of Pécs) Preimplantation genetic testing: the concept of ni-PGT-A.
10:00 – 10:20	Péter Fancsovits (Semmelweis University) Time-lapse technologies and non-invasive embryo diagnostics in IVF treatments
10:20 – 10:40	József Bódis, Ákos Várnagy, Kálmán Kovács (University of Pécs) A new method for monitoring embryo development.
10:40- 11:00	Coffee break

**Pillar-2 Female clinical studies related to
reproduction**

Chairs: István Sziller, Petru Chitulea	
11:00 – 11:20	Éva Mikó, Miklós Sipos (University of Pécs and Semmelweis University) The role of the microbiome in fertility.
11:20 – 11:40	Attila Jakab, Emese Mezősi, Tímea Berki (University of Debrecen, University of Pécs) Innovative markers in primary ovarian insufficiency.
Pillar-3 Sperm function and reproduction	
11:40 - 12:00	Zsolt Kopa (Semmelweis University) Sperm function, the new side of male infertility
12:00 - 12:20	Gábor L. Kovács (University of Pécs) Cryo-electron microscopy in reproductive research.
12:20 - 13:30	Lunch break

Scientific Session - Part 3	Chairs: Elena Bernad, Varbiro Szabolcs
13:30-14:15 Keynote talk 2	Peter Horvath (HUN-REN) Life beyond the pixels: single-cell analysis using deep learning and image analysis methods
14:30-14:45	Eszter Ducza (Szeged) Changes of placental transporters and aquaporin5 expression in obesity
14.45-15:00	Paula Jorge (Porto) Exploring the FMR1 Gene as a Predictor of IVF Outcomes
15.00-15:15	Eugloh talk WU JIAO (China) Creatine for women: a review of the relationship between creatine and the reproductive cycle and female-specific benefits of creatine therapy

15:15-16:00	Coffee break
Scientific Session - Part 4	Chairs: Tihomir Vejnovic, Nicolae Suci
16:00-16:15	Dóra Vesztergom, Miklós Sipos (Budapest) Establishing a Fertility Preservation Network in Hungary: A Step-by-Step Guide from Initial Interventions to Legislative and Political Advocacy
16.15-16.30	Nicolae Suci (Bucharest) Parallel WES Analysis of Blood and Tumor Samples in Endometrial Cancer: Lynch Syndrome Associations
16:30-16:45	Flora Fehér (HUN-REN) Non-contact assessment of newborn and preterm infant activity levels, behavioral states, and sleep-wake

	cycles in Neonatal Intensive Care Units
16:45-17:00	Edina Dombi - Szabolcs Várbió (Szeged) perinatal risk estimation and management of patients
17:00-17:15	Marius Craina (Timisoara) Human assisted reproduction in the western Romania: past, present and future
Scientific Session - Part 5	Chairs: David Archer, Tibor Novák
17:15-17:30	Mateusz Zamlynski (Bytom, Poland) Intrauterine repair for fetal spina bifida. Experience of the Fetal Surgery Center in Bytom - from the past to the present.
17:30-17:45	Lóránt Csákány (Szeged) A new potential non-invasive diagnostic method

	for stress incontinence
17:45-18.00	Balint Kolcsar (Szeged) The role of elastography in the identification of structural and functional abnormalities of the placenta
19:00-21:00	Gala dinner (Hotel ART)

Saturday 21st September

Scientific Session - Part 6	Chair: Peter Koliba, Dieter Bettelheim
08:45-9:30 Keynote talk 3	Jan Prada (Prague) Medical training - what do young doctors struggle with the most?
9:30-9:45	Andrea Surányi (Szeged) Preeclampsia: emphasize the ultrasound investigations
9:45-10:00	Marius Craina (Timisoara) Ob-gyn medical training and specialization in Romania
10:00-10:15	Mihaela Crişan-Vida (Timisoara) Using new technologies in medical education and training
10:15-10:45	Coffee break, Award ceremony Closing remarks

Hands-on trainings – Skill Center (Address: 6720 Szeged, Szőkefalvi-Nagy Béla Str. 6.)	
11:00-11:45	<p>Dieter Bettelheim (Vienna) Hands on training in prenatal diagnostic procedures using our Phantom for diagnostic procedures</p>
12:00-16:00	<p>Andrea Surányi (Szeged) Course#1: Ob/Gyn 12-Week Fetus Module Basic level (8 person/1 hour)</p>
	<p>Course#2: Ob/Gyn 20-Week Fetus Module Basic level (6 person/1 hour)</p>
	<p>Course#3: Ob/Gyn 12-Week Fetus Module Advanced level (4 person/1 hour)</p>
	<p>Course#4: Ob/Gyn 20-Week Fetus Module Advanced level (4 person/1 hour)</p>

Abstracts

Table of contents

Thursday 19 th September	7
Friday 20 th September	11
Saturday 21 st September	18
Non-contact assessment of newborn and preterm infant activity levels, behavioral states, and sleep-wake cycles in Neonatal Intensive Care Units.....	25
INTERVENTIONS TO IMPROVE YOUTH SEXUAL AND REPRODUCTIVE HEALTH IN ROMANIA	28
HPV VACCINATION IN ROMANIA - OPPORTUNITIES AND CHALLENGES.....	31
Myomectomy during scheduled Cesarean section case report - abstract	34
THE NEW INNOVATION ECO-SYSTEM OF GEDEON RICHTER. - THE RICHTER REPRODUCTION NETWORK.....	36
The National Laboratory on Human Reproduction of the University of Pécs: the research core-facility of Richter Reproduction Network.....	38
Non-invasive genetic and biomarker research using the spent medium: a new approach to embryo viability assessment	40
PREIMPLANTATION GENETIC TESTING: THE CONCEPT OF NIPGT-A	42
Changes of placental Time-lapse technologies and non-invasive embryo diagnostics in IVF treatmentstransporters and aquaporin5 expression in obesity	45
A new method for monitoring embryo development.....	47

Innovative markers in primary ovarian insufficiency	50
Sperm function, the new side of male infertility.....	53
Cryo-electron microscopy in reproductive research.....	56
LIFE BEYOND THE PIXELS: SINGLE-CELL ANALYSIS USING DEEP LEARNING AND IMAGE ANALYSIS METHODS.....	59
Changes of placental transporters and aquaporin5 expression in obesity	61
Parallel WES Analysis of Blood and Tumor Samples in Endometrial Cancer: Lynch Syndrome Associations	64
HUMAN ASSISTED REPRODUCTION IN THE WESTERN ROMANIA: PAST, PRESENT AND FUTURE	66
Intrauterine repair for fetal spina bifida. Experience of the Fetal Surgery Center in Bytom - from the past to the present.	69
A new potential non-invasive diagnostic method for stress incontinence.....	72
THE ROLE OF ELASTOGRAPHY IN THE IDENTIFICATION OF STRUCTURAL AND FUNCTIONAL ABNORMALITIES OF THE PLACENTA.....	75
PREECLAMPSIA: EMPHASIZE THE ULTRASOUND INGVESTIGATIONS.....	78
OB-GYN MEDICAL TRAINING AND SPECIALIZATION IN ROMANIA	81
USING NEW TECHNOLOGIES IN MEDICAL EDUCATION AND TRAINING.....	83
Impact of implementation of an enhanced recovery (ERAS) program in gynecology on healthcare costs: A single-centre experience	85

Combining Molecular and Traditional Prognostic Factors: A Holistic Approach to Breast Cancer Prognostication	90
MATERNAL BIRTH INJURIES IN BREECH DELIVERY	92
Comparison of the clinical efficacy of surgical versus medical method for first trimester pregnancy termination at The Obstetrics and Gynecology Clinic Narodni front in Belgrade.....	94
META-ANALYSIS COMPARING THE RISK OF SIMPTOMATOLGY IMPACTING QUALITY OF LIFE IN NATURAL MENOPAUSE VERSUS PREMATURE MENOPAUSE	96
INFLUENCE OF PSYCHOSOCIAL FACTORS ON CARDIOVASCULAR HEALTH IN PREGNANCY.....	98
Clinical efficacy of medical method for first trimester pregnancy termination at The Obstetrics and Gynecology Clinic Narodni front in Belgrade	101
THE STUDY OF EXPERIENCES DURING THE GESTATION PERIOD.....	103
SCREENING FOR CERVICAL CANCER AND DIABETES MELLITUS AS A POTENTIAL RISK FACTOR.....	106
THE STUDY OF EXPERIENCES DURING THE GESTATION PERIOD.....	109
THE MODE OF TERMINATING PREGNANCIES COMPLICATED BY HYPERTENSION.....	112
Creatine for women: a review of the relationship between creatine and the reproductive cycle and female-specific benefits of creatine therapy.....	115
SONOGRAPHIC FEATURES OF THE NICHE IN THE CESAREAN SECTION SCAR DEPENDING ON THE DEGREE OF CERVICAL	

DILATION DURING LABOR AND TECHNIQUE OF PREVIOUS HYSTERORRHAPHY	118
MYOMECTOMY DURING CESAREAN SECTION	121
PREGNANCY DATING IN IVF: A COMPARATIVE ANALYSIS OF GESTATIONAL AGE ESTIMATION FROM EMBRYO TRANSFER DATE AND ULTRASOUND MEASUREMENTS OF CROWN- RUMP LENGTH.....	124

Title:

Non-contact assessment of newborn and preterm infant activity levels, behavioral states, and sleep-wake cycles in Neonatal Intensive Care Units

Authors:

Dr. Péter Földesy¹, Dr. Miklós Szabó²,
Dr. Judit Varga², Ádám Nagy¹,

Flóra Fehér¹, Zita Lilla Róka¹, Imre
Jánoki¹, and Dr. Ákos Zarándy¹

Affiliations:

1 HUN-REN Institute for Computer
Science and Control - SZTAKI, Hungary

2 Semmelweis University, Budapest
Division of Neonatology 1st Dept. of
Pediatrics, Budapest, Hungary

Keywords: NIDCAP, non-contact monitoring, NICU

Abstract:

Background: Preterm births are increasing worldwide. Every 10th baby stays in an incubator for weeks or months. Surveys confirm the importance of undisturbed sleep in surviving and healing during this period. However, there are no medical means of monitoring sleeping habits or disruptive environmental hazards.

Material and Methods: To support minimal intervention practice, we develop surveillance, sleep, and behavior analysis systems for medical professionals in neonatal intensive care units. Our vision is to give a tool for caregivers and families to see the babies and their development. The intelligent surveillance system is based on our incubator-friendly day and night working cameras and AI sleeping stage classification. The system is working in a closed local network, securely and independently of the hospital intranet. For data analysis and AI training, we store the videos and annotate them offline and online with bedside tablets. Infants' data is acquired by parental questionnaire in recorded in a REDCap database for further analysis.

Results: The achieved accuracy of the recognition of the neonates' NIDCAP behavioral phases is 85.5-95.8% on a 1000+ hours dataset. We recognize stages besides behavioral phases, like invasive, and non-invasive treatments, and skin-to-skin contact periods.

Conclusion: The non-contact and continuous 24/7 surveillance gives great help for minimal intervention practice, furthermore our design is suitable for a wide

range of closed incubator types. We are working on to make the system available.

Title:

INTERVENTIONS TO IMPROVE YOUTH SEXUAL
AND REPRODUCTIVE HEALTH IN ROMANIA

Authors:

Brenda Bernad¹, Simona Tămășan²,
Anca Panfil², Laura Alexandra
Nussbaum¹, Elena Bernad^{1,2,3}, Vlad
Nicoraș², Lavinia Hoge¹

Affiliations:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
2“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
3Center for Laparoscopy, Laparoscopic
Surgery and In Vitro Fertilization,
Timisoara, Romania

Keywords: sexuality, reproductive health, reproductive
rights, youth, violence

Abstract:

Background: The perception of information received from unfounded sources regarding sexuality can be confusing and contradictory for youth who are in a period of transition from the dependence of childhood to adulthood's independence. Therefore, sexual education is essential to empowering youth with the knowledge and morals necessary to make mature and responsible decisions about their social and sexual interactions. This work aims to highlight some important aspects related to reproductive health and the reproductive rights of youth in Romania.

Material and Methods: We present the possibilities of youth access to information and services related to sexual and reproductive health and rights, sexuality education, prevention of sexually transmitted infections, family planning services, prevention of unwanted pregnancies, and prevention of gender-based violence in the West part of Romania.

Results: In Romania, accessibility to sexual, reproductive, and mental health is realized through a series of programs and activities in educational institutions, community settings, psycho-medical centers, and religious centers. Youth receive a good part of their informal information from their peer circle, family, and through electronic means or other means of communication. Family planning centers, different foundations whose object is to support reproductive health and the Intervention Center for Victims of Sexual Violence from Timisoara are just a

few significant landmarks in excellent management of the problems related to reproductive health.

Conclusion: Youth access to safe sources of information and education is vital for the balanced development of the future adult. Interventions on several levels offer opportunities for improved youth sexuality outcomes by helping them understand their rights related to reproductive health, acquire essential life skills, and develop positive attitudes and values regarding their sexuality.

Title:

HPV VACCINATION IN ROMANIA -
OPPORTUNITIES AND CHALLENGES

Authors:

Elena Bernad^{1,2,3}, Brenda Bernad¹,
Marius Craina^{1,2,3}

Affiliatons:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania

2“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania

3Center for Laparoscopy, Laparoscopic
Surgery and In Vitro Fertilization,
Timisoara, Romania

Keywords: Human Papillomavirus, vaccine
strategies, national immunization programme, cervical
cancer

Abstract:

Background: Human papillomavirus (HPV) infection is linked to cervical cancer (CC) and various anogenital conditions. It is also important to note that several other types of cancer are associated with HPV infection, including head and neck cancers. This causal link, which proved that HPV infection is a critical factor in most cases of cervical cancer, allowed the development of strategies to prevent these oncologic pathologies. The possibility of preventing HPV-associated CC and other medical conditions through vaccination is an important issue. We aim to present the opportunities and challenges related to the National HPV Vaccination Program in Romania.

Material and Methods: Our retrospective study was based on statistical data from the National Institute of Statistics, the National Registry of Vaccination, and feedback from specialists in the field who are involved in National HPV Vaccination.

Results: The data processing from the first six months of the vaccination program showed reduced participation of both female and male participants. Through discussions with medical service providers, blockages of the vaccination program were identified. Proposals were formulated to improve the program's development and increase program performance with the evolution of immunization coverage during the next years of implementation.

Conclusion: It is important that both the population and medical service providers are aware of the importance of vaccination for the prevention of some forms of HPV-

associated cancers, which have medical, economic, and social implications.

Title:

Myomectomy during scheduled Cesarean section
case report - abstract

Authors:

Petru Chitulea MD PhD (1) , Rares
Gherai MD PhD(2), Cristian Cheta MD
(3), Tania Negru (4)

Affiliations:

1. Associate professor Faculty of
Medicine University of Oradea,
2. Oradea County Emergency Clinical
Hospital – Maternity
3. Arad County Emergency Clinical
Hospital – Maternity
4. Medical student – Medicine
University of Oradea

Keywords:

Abstract:

Myomectomy during caesarean section, although it is not a common procedure, it can be performed in safe conditions by an experienced team, using bilateral temporary ligation of the uterine arteries which is the best approach in our opinion. The presented case is about a 37-year-old patient, at her 2nd pregnancy, with caesarean section at the first birth, monitored pregnancy. During the prenatal consultations for pregnancy she was diagnosed with a large uterine fibroid located posteriorly, in the area of the right edge of the uterus and which was excised during the scheduled caesarean section, without intraoperative complications and with favorable postoperative evolution.

Title:

THE NEW INNOVATION ECO-SYSTEM OF
GEDEON RICHTER. - THE RICHTER
REPRODUCTION NETWORK.

Authors:

Zsolt Szombathelyi

Affiliations:

Gedeon Richter Plc., Budapest,
Hungary

Keywords: Gedeon Richter, innovation, human
reproduction, co-creation

Abstract:

Headquartered in Hungary, Gedeon Richter is an innovation-driven specialty pharmaceutical company focusing on women's healthcare, neuropsychiatry, biotechnology and general medicines.

The goal of Gedeon Richter Plc.'s business strategy is to become a prominent player in the league of European-

based midpharma especially in the fields of women's healthcare and neuropsychiatry.

In order to achieve such leading role, the classic means of innovation - when all elements of the value chain are built inhouse - are no longer adequate. We had to develop a new model, which the Company started in 2022.

The characteristics of the innovation model are the followings:

- It is organized according to the Company's strategy
- Richter plays a leading and organizing role
- It targets unmet medical, social and market needs
- Co-creation involving universities, academic institutes, start-up companies
- Concentrates on Hungary, builds on the best Hungarian research groups / clinical departments
- It is open innovation-based (retains freedom of connection and science)
- Makes an attractive value proposition for partners
- It is built around a top-class central laboratory
- No rights are automatically created for Richter

Three networks are currently being developed. Two in the field of central nervous system diseases and one in the field of gynecology. The latter is the Richter Reproduction Network, in which 20 working groups from 6 institutes cooperate currently.

We were happy to accept the invitation of Diczfalusy conference to present 11 projects of the network.

Title:

The National Laboratory on Human Reproduction
of the University of Pécs: the research core-
facility of Richter Reproduction Network.

Authors:

Gábor L. Kovács

Affiliations:

National Laboratory on Human
Reproduction,
University of Pécs, Hungary

Keywords: human reproduction, female and male
infertility, ART, innovation, scientific core facility.

Abstract:

The number of infertile couples in Hungary may reach 15% of the total number of married couples. In order to successfully diagnose and treat infertility, and to increase the efficiency of assisted reproductive technologies, a

broad spectrum of innovative clinical research is required. The National Laboratory of Human Reproduction (NLHR) is a scientific organization at the University of Pécs, supported by the Hungarian government and by EU RRF funds. It is organized into six research groups in 26 thematic research areas. The main research interests of the NLHR include (1) female and male infertility research, (2) basic molecular and genomic research, (3) reproductive immunology research, (4) clinical endocrinology and immunology research, (5) analysis of transgenerational effects of in vitro fertilization (IVF) procedures, and (6) estimation of health burden and health economics related to reproductive disorders. The research activities are organized within an integrated research system. The complex approach of analyzing the background of infertility and the molecular mechanisms of embryo implantation and pregnancy within a research framework is essential to effectively improve clinical reproductive diagnostics and increase the efficiency of assisted reproduction procedures. The NLHR organization coordinates the collaboration of working groups in the thematic areas of research in the fields of basic research, clinical research, experimental development and the industrial development phases of innovation and technology transfer. In the last four years, the NLHR has published 104 international scientific publications. It also serves as the scientific core of the recently established Richter Reproduction Network.

Title:

Non-invasive genetic and biomarker research
using the spent medium: a new approach to
embryo viability assessment

Authors:

Gábor L. Kovács

Affiliations:

National Laboratory on Human
Reproduction,
University of Pécs, Hungary

Keywords: human reproduction, IVF, spent embryo
culture fluid, viability, diagnostics

Abstract:

In vitro fertilization (IVF) relies on the accurate assessment of embryo viability as a crucial factor in achieving a successful pregnancy. At present, the most frequently utilized methodologies are based on the

morphological examination of embryos, with the objective of assessing viability through visual evaluation. However, this method is subjective and provides limited insight into the biochemical and genetic state of the embryo. In recent years, there has been a growing interest in the diagnostic potential of the embryo's culture medium. The fluid in which embryos develop in the days following fertilization may contain molecular markers that are directly correlated with the biological state of the embryo. These markers, which may include metabolites, proteins (enzymes), or even genetic material (e.g. microRNAs and DNA fragments), can provide valuable information on the developmental potential of the embryo. The objective of the research is to identify the molecular biomarkers in the culture fluid that most closely correlate with the viability of the embryos. The utilization of these biomarkers may facilitate non-invasive embryo selection, which has the potential to markedly enhance the success rate of IVF. Concurrently, the number of unnecessary embryo transfers could be reduced, which would be beneficial for both patients and healthcare systems. The objective of this presentation is to review the current research results and possibilities of culture fluid analysis and to demonstrate how this technology can be integrated into everyday clinical practice. Furthermore, we will describe the challenges that still need to be faced to make culture fluid diagnostics a reliable and widely accepted tool in IVF in the future.

Title:

PREIMPLANTATION GENETIC TESTING: THE
CONCEPT OF NIPGT-A

Authors:

Katalin Gombos, Attila Gyenesei and
Gabor L. Kovacs

Affiliations:

National Laboratory on Human
Reproduction, University of Pecs,
Hungary

Keywords: in vitro fertilization, spent culture medium,
next-generation sequencing, non-invasive pre-
implantation genetic testing for aneuploidy

Abstract:

Background: Although non-invasive pre-implantation genetic testing for aneuploidy (NIPGT-A) has the potential to be an appropriate method for assessing chromosomal ploidy in the human embryo, its practical application in a routine IVF center has yet to be initiated, as no recommendation has been issued. Our objective was to

develop and evaluate the efficacy of an NIPGT methodology. The present study focused on the analysis of cell-free embryonic DNA extracted from the spent culture medium of embryos, with a particular emphasis on copy number variations (CNVs) for the assessment of the embryos' ploidy.

Material and Methods: Whole genome amplification and next generation sequencing (NGS) were conducted on cell-free DNA extracted from spent blastocyst culture media of Day 3 embryos that had been fertilized with intracytoplasmic sperm injection (ICSI). A corresponding sample of blank culture media was utilized as a background control for each embryo assessment. Chromosomal abnormalities are identified through the implementation of an optimized bioinformatics pipeline, which employs a copy number variation (CNV) detection algorithm.

Results: A statistical analysis revealed significant differences in CNVs between embryos that resulted in successful pregnancies and those that led to miscarriages. Moreover, comprehensive sequencing and comparison with genetic databases, including UNIQUE, Genetic Alliance, and CDO, confirmed aneuploidy in the embryonic genomic DNA from the culture medium in 75% of cases that resulted in miscarriage, specifically affecting critical chromosomal regions.

Conclusion: We present a comprehensive workflow that encompasses both wet-lab and dry-lab procedures, offering a clinically applicable strategy for NIPGT-A. It can be completed within 48 hours, which is crucial for same-

cycle blastocyst transfer but also suitable for "freeze all" and "elective frozen embryo" strategies. The described integrated approach has the potential to supplement existing pre-implantation genetic screening methods.

Title:

Changes of placental Time-lapse technologies and non-invasive embryo diagnostics in IVF treatmentstransporters and aquaporin5 expression in obesity

Authors:

Peter Fancsovits

Affiliatons:

Semmelweis University, Department of Obstetrics and Gynecology, Division of Assisted Reproduction

Keywords: Time-lapse imaging; In vitro fertilization; Embryotransfer; Artificial intelligence

Abstract:

Background:

In human IVF treatments, the most viable embryos are traditionally selected based on morphological characteristics. Transfer of embryos with appropriate developmental stage and good morphology may improve pregnancy and delivery rates. However, these subjective

assessments are not suitable for selecting viable embryos. Therefore, new methods to assess embryo viability have recently become more widespread.

Material and Methods:

This is a literature review of non-invasive embryo assessment based on time-lapse video analysis (TLI) of embryo development.

Results:

Embryo development and morphology can be objectively assessed using TLI. TimeLapse analysis has provided new markers for embryo selection and represents a powerful new tool for assessing embryo viability. Several morphokinetic parameters appear to correlate with embryo developmental and implantation potential. However, no single or combined morphokinetic parameter was consistently identified as predictive of embryo ploidy status. Further advances can be made in the analysis of time-lapse images using artificial intelligence.

Conclusion:

TLI analysis offers a promising option for the selection of viable euploid embryos, but further research and method refinement are needed before this new technique can be widely adopted in clinical practice.

Title:

A new method for monitoring embryo
development

Authors:

József Bódis, József Berke, Ákos
Várnagy, Bernadett Nagy, Zoltán
Bognár, István Gulyás, Kálmán Kovács

Affiliations:

National Lab.for Human
Reproduction, Dep. of Obstetrics and
Gynecology, Clinical Center, Dep. of
Med. Biology and Central Electron
Microscope Lab., Medical School, HUN-
REN–PTE Human Reproduction
Research Group, University of
Pécs, Dep. of Drone Technology and

Keywords: ART, photon emission, PEECS time-lapse

Abstract:

Background: Worldwide, more than 8 million children
have been born as a result of assisted reproductive

technology, and about 2.5 million in-vitro fertilisation (IVF) cycles resulting in 500,000 children are delivered annually. The method used for embryo selection and transfer is a very important ethical, and even more so practical, issue. Using time-lapse technology embryos can be viewed and monitored continuously throughout their development, but visible light is required.

Material and Methods: Living cells have spontaneous ultraweak photon emission derived from metabolic reactions associated with physiological conditions. The ORCA-Quest CMOS camera (Hamamatsu Photonics, Japan) is a highly sensitive and essential tool for photon detection; its use with a microscope incubator (Olympus) enables the detection of photons emitted by embryos with the exclusion of harmful visible light. With the application of the second law of thermodynamics, the low-entropy energy absorbed and used by embryos can be distinguished from the higher-entropy energy released and detectable in their environment. To evaluate higher-entropy energy data from embryos, we developed a unique algorithm for the calculation of the entropy-weighted spectral fractal dimension.

Results: Analyses based on the structure enabled the distinction of living and degenerated mouse embryos, and of frozen and fresh embryos and the background. This novel detection of ultra-weak photon emission from mouse embryos can provide the basis for the development of a photon emission embryo control system (PEECS). The ultraweak photon emission

fingerprints of embryos may be used for the selection of viable specimens in an ideal dark environment.

Conclusion: It has been detected UPE from mouse embryos, providing the basis for an embryo monitoring system with the control of developmental, physiological and energetic processes under ideal dark incubation conditions with no external physical or chemical stimulation.

Title:

Innovative markers in primary ovarian
insufficiency

Authors:

Attila Jakab¹, Emese Mezősi²

Affiliations:

1University of Debrecen, 2University of Pécs

Keywords: primary ovarian insufficiency, ovarian reserve, DNA methylation, anti-ovarian autoantibodies, biomarkers

Abstract:

Background: Primary ovarian insufficiency (POI) is characterized by the cessation of folliculogenesis, lack of ovarian estrogen production, and infertility. The global prevalence of POI was estimated to be 3.7%. Recently, understanding of the genetic background has improved, with over 50 genes implicated in POI, however, the role of epigenetic factors (e.g., DNA methylation, non-coding small RNAs) has not been investigated.

Material and Methods: A clinical study was conducted at the University of Debrecen Gynecological Endocrinology Clinic including data from 142 POI patients. This study can be extended to establish a national database. We aim to determine the DNA methylation patterns associated with POI using state-of-the-art genomic and bioinformatics methods. The Institute of Immunology and Biotechnology at the University of Pécs will set up measurements for POI-related autoantibodies.

Results: The etiology of POI was iatrogenic in 29%, autoimmune in 24%, genetic in 14%, and unknown in 33%, respectively. The establishment of the POI biobank, processing of blood samples, WGBS experiments, and bioinformatics analyses will be conducted at the Genomic Bioinformatics Service Center of the University of Debrecen. Screening individuals in high-risk groups will allow monitoring of the appearance of autoantibodies and the time-dependent development of ovarian insufficiency. The next step is to develop new biomarkers to assess the ovarian reserve. The currently used markers (anti-Müllerian hormone, inhibin B, FSH, estradiol, and antral follicle count) correlate with the number of growing follicles and are thus indirect markers of ovarian reserve.

Conclusion: In addition to conventional laboratory markers, the past decade produced significant advancements in understanding genes involved in ovarian function. Attention has focused on the close relationship between ovarian aging and general biological aging processes, involving changes in DNA methylation,

mitochondrial dysfunction, alterations affecting telomere length, and the regulatory functions of microRNAs. These findings open new pathways for predicting ovarian function.

Title:

Sperm function, the new side of male infertility

Authors:

Kopa Zsolt

Affiliations:

Andrology Centre, Dept. of Urology,
Semmelweis University, Budapest

Keywords: Male infertility, sperm function, DNA fragmentation index, reactive oxygen species, biomarkers.

Abstract:

Background:

Male infertility is a growing concern worldwide. Infertility affects 1 in 6 couples in Western Europe and in 20% only male factor can be found. Traditionally, assessments of male fertility have focused on classical sperm parameters: sperm count, motility and morphology. However, recent studies suggest that sperm function, including its biochemical and molecular characteristics, plays a critical role in fertility outcomes. Understanding

these functions can provide new insights into male infertility and lead to more effective treatments.

Material and Methods:

Advanced assays are recently employed to evaluate sperm function, including sperm DNA fragmentation index (SDF), reactive oxygen species (ROS) levels, and mitochondrial membrane potential (MMP). Up to now only SDF became an evidence based sperm functional test, but the gold standard method and correct thresholds are still not identified. Proteomic and transcriptomic analyses can also be conducted to identify potential biomarkers associated with impaired sperm function.

Results:

Recent publications revealed that while classical sperm parameters can be over the WHO lower reference limits for a significant subset of patients, abnormalities in sperm function could be prevalent. Elevated DFI levels were significantly correlated with lower pregnancy rates, both in natural conception and in ART. In some trials ROS and MMP was also found to be a critical determinant of sperm viability and function. Proteomic and transcriptomic analyses identified several key proteins and genes, such as protamines and mitochondrial genes, that were differentially expressed in infertile men, suggesting their potential role as biomarkers for sperm dysfunction.

Conclusion:

Studies underscores the importance of assessing sperm function in the evaluation of male infertility. Traditional semen parameters alone may not provide a complete

picture of male fertility potential. Incorporating advanced functional assays can improve diagnostic accuracy and treatment strategies, ultimately enhancing fertility outcomes for affected couples.

Title:

Cryo-electron microscopy in reproductive
research

Authors:

Gábor L. Kovács and Katalin Gombos

Affiliations:

National Laboratory on Human
Reproduction,
University of Pécs, Hungary

Keywords: cryo-EM, competence center, human
reproduction, membrane fusion, embryonic
fragmentation

Abstract:

Cryo-electron microscopy (cryo-EM) has emerged as a transformative tool in the field of structural biology, offering high-resolution insights into complex biomolecular structures. The Nobel Prize was awarded to the discoverer in 2017. The University and Pécs, in collaboration with Richter Gedeon Plc., is engaged in the

establishment of a national competence center on cryo-EM research at the Szentágothai Research Centre in Pécs. The application of cryo-EM technology in human fertility research has the potential to yield significant results, particularly in the study of membrane fusion proteins and embryonal fragmentation. These processes are critical to successful fertilization and embryonic development, and consequently, to the design of effective drugs. Membrane fusion proteins, such as those involved in sperm-egg fusion and subsequent cellular events, are of critical importance in the initiation of fertilization. A comprehensive understanding of the detailed structure and mechanism of these proteins is crucial for the development of effective treatments for infertility. The use of cryo-EM enables the visualization of these proteins close to their natural states, thereby providing unparalleled insight into their conformational dynamics and interactions. This could result in the identification of novel targets for therapeutic intervention, which may ultimately enhance fertilization success rates. Embryonal fragmentation, defined as the phenomenon whereby portions of the embryo break off during the early stages of development, represents a key indicator of embryo quality and viability in the context of assisted reproductive technologies (ART). Cryo-EM provides a distinctive opportunity to examine the ultrastructural alterations associated with fragmentation at the molecular level. By elucidating the mechanisms underlying embryonal fragmentation, cryo-EM could contribute to the development of strategies to reduce

fragmentation and enhance embryo selection processes, thereby increasing the success rates of ART. This presentation highlights the potential of cryo-EM to advance our understanding of pivotal molecular processes in human fertility.

Title:

LIFE BEYOND THE PIXELS: SINGLE-CELL
ANALYSIS USING DEEP LEARNING AND IMAGE
ANALYSIS METHODS

Authors:

Peter, Horvath, 1,2,3

Affiliations:

1 Institute of Biochemistry, Biological
Research Centre, Szeged, Hungary

2 Institute for Molecular Medicine
Finland, HiLIFE, University of Helsinki,
Finland

3 Helmholtz Munich, AI4Health
Institute, Germany

Keywords:

Abstract:

In this talk I will give an overview of the computational steps in the analysis of a single cell-based large-scale microscopy experiments. First, I will present a novel

microscopic image correction method designed to eliminate illumination and uneven background effects which, left uncorrected, corrupt intensity-based measurements. New single-cell image segmentation methods will be presented using differential geometry, energy minimization and deep learning methods. I will discuss the Advanced Cell Classifier (ACC), a machine learning software tool capable of identifying cellular phenotypes based on features extracted from the image. It provides an interface for a user to efficiently train machine learning methods to predict various phenotypes. For cases where discrete cell-based decisions are not suitable, we propose a method to use multi-parametric regression to analyze continuous biological phenomena. To improve the learning speed and accuracy, we propose an active learning scheme that selects the most informative cell samples.

Our recently developed single-cell isolation methods, based on laser-microcapturing and patch clamping, utilize the selection and extraction of specific cell(s) using the above machine learning models. I will show that we successfully performed DNA and RNA sequencing, proteomics, lipidomics and targeted electrophysiology measurements on the selected cells.

Title:

Changes of placental transporters and aquaporin5
expression in obesity

Authors:

1Eszter Ducza, 1Kata Kira Kemény,
1Péter Szatmári, 2Andrea Surányi,
2Ábel T Altorjay, 2Bálint Kolcsár,
3Robert Gáspár,

Affiliations:

1Department of Pharmacodynamics
and Biopharmacy, Faculty of Pharmacy,
University of Szeged;2Department of
Obstetrics and Gynecology, Albert
Szent-Györgyi Medical School,
University of Szeged;3Department of
Pharmacology and Pharmacotherapy,
Albert Szent-Gy

Keywords: P-glycoprotein, AQP5, pregnancy, obesity

Abstract:

Background: The placenta protects the fetus against harmful xenobiotics. The most extensively studied transporter in the placenta is the P-glycoprotein (P-gp), which localizes in syncytiotrophoblast layers and mediates the protective mechanisms via efflux pump function with a wide range of substrate selectivity, including drugs, environmental chemicals, dietary constituents, and endogenous compounds. The aquaporins (AQPs) are a family of integral membrane channel proteins that facilitate rapid passive movement of water. AQP5 has been described in the mammalian female reproductive tract, for example, the placenta and uterus. Earlier, the importance of AQP5 expression was demonstrated in pregnant rat uterus contraction and the initiation of preterm birth. In our study, we investigated changes in P-gp and AQP5 expression in the placental and uterus tissues of mothers who were healthy (control) and obese. Moreover, we determined the changes in oxidative status and epigenetic modification in obese women.

Material and Methods: We used RT-PCR and Western blot techniques to detect changes in P-gp and AQP5 expression in tissues, and AQP5 concentration was detected in the plasma by ELISA assays. Total antioxidant capacity (TAC) was determined using a colorimetric assay, and the Methylated DNA Quantification Kit measured epigenetic modification.

Results: P-gp expression significantly decreased in the placental tissues of obese mothers. AQP5 channel expression in the uterus and plasma reached a maximum

level in the gestation weeks of 34 in healthy women. In obese women, the AQP5 expression was significantly higher compared to the control. TAC significantly decreased, and DNA methylation increased in obese women compared to the control group.

Conclusion: Our research may explain the most important pathological processes induced by obesity during pregnancy. Our results will raise awareness of the importance of reproductive health and may contribute to the development of effective therapies and diagnostic markers.

Title:

Parallel WES Analysis of Blood and Tumor
Samples in Endometrial Cancer: Lynch Syndrome
Associations

Authors:

Robert Botea 1,2#, Madalina Piron-
Dumitrascu 1,2#, Dragos Cretoiu 3,4,
Tiberiu Augustin Georgescu 5,6,
Simona Raluca Iacoban 1, Nicolae Suci
1,2

Affiliations:

1 Discipline of Obstetrics, Gynecology
and Neonatology - Polizu Clinical
Hospital, Department of Obstetrics and
Gynecology, Carol Davila University of
Medicine and Pharmacy, Bucharest,
Romania
2 Department of Obstetrics and
Gynecology, Alessandrescu-Ruses

Keywords:

Abstract:

A parallel Whole Exome Sequencing (WES) analysis was conducted on paired blood and tumor samples from endometrial cancer patients to investigate Lynch syndrome associations and assess the clinical benefits of WES for diagnosis and treatment. This study highlighted the enhanced diagnostic precision offered by tumor WES, which identified somatic mutations not detected in blood samples, providing critical insights for personalized therapy. In particular, tumor WES revealed actionable mutations that were absent in blood samples, guiding the selection of targeted therapies and improving treatment outcomes. Additionally, the detection of resistance mutations in tumor tissue allowed for timely adjustments in treatment plans, potentially preventing disease progression. The findings highlight the value of dual WES in achieving a comprehensive genetic profile, essential for accurate diagnosis, prognosis, and personalized therapeutic strategies. The study demonstrates that incorporating tumor WES can significantly enhance the clinical management of endometrial cancer, particularly in patients at risk for Lynch syndrome.

Title:

HUMAN ASSISTED REPRODUCTION IN THE
WESTERN ROMANIA: PAST, PRESENT AND
FUTURE

Authors:

Marius Craina, Lavinia Stelea, Elena
Bernad

Affiliations:

“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
Center for Laparoscopy, Laparoscopic
Surgery and In Vitro Fertilization,
Timisoara, Romania

Keywords: female/male fertility, infertility, assisted
reproductive techniques (ART), in vitro fertilization (IVF),
psycho-social factors, effectiveness, safety

Abstract:

Background: Infertility can be caused by a variety of factors, including both male and female factors, and in some cases, the cause remains unknown. Assisted reproductive technologies (ART) are widely practised throughout the world but continue to be characterized by significant disparities in utilization, practice, effectiveness, and safety. In this context, some questions are raised: What were ART practices' utilization, effectiveness, and safety, and what are the trends in the Western Region of Romania and globally?

Material and Methods: To answer these questions, we searched for the specific publication, latest updates, and published studies. We also consulted available registries, databases, and guidelines related to ART.

Results: The Center for Laparoscopy, Laparoscopic Surgery and In Vitro Fertilization, Timisoara, was the pioneering institution in this field in Romania, with its results being remarkable for that time. In Romania, the Social program of national interest to support couples and single people for growth birth rate is in operation, and its initiatives and results have been incorporated into this research. The annual world report series, such as those published by The International Committee for Monitoring Assisted Reproductive Technologies (ICMART), serve as a valuable tool for tracking trends in ART methodologies and results. The Global Summit on Safety and Access to Fertility Care has also been utilized in our research to emphasize strategies for enhancing access to safe, ethical, and cost-effective fertility care in low to middle-income countries. These findings are

significant as they provide a comprehensive overview of the current state of ART practices globally and in the Western Region of Romania.

Conclusion: Recent years have witnessed a rapid expansion in assisted reproduction technologies, but at the same time, significant obstacles requiring urgent interventions have also been identified. These challenges are intertwined with economic costs, limited access and centers of ART, inadequately trained infertility staff, insufficient government support, and psycho-social and socio-cultural factors. The urgency of addressing these issues is crucial for the future of ART practices, and this research underscores the importance of immediate action.

Title:

Intrauterine repair for fetal spina bifida.
Experience of the Fetal Surgery Center in Bytom -
from the past to the present.

Authors:

Mateusz Zamlynski¹, Rafal Bablok¹,
Karina Sypek-Sliwa¹, Jacek Zamlynski¹,
Tomasz Horzelski¹, Agnieszka
Pastuszka^{1,2}, Anita Olejek¹

Affiliatons:

Department of Gynecology, Obstetrics
and Oncological Gynecology, Faculty of
Medical Sciences in Zabrze, Medical
University of
Silesia, Poland. Department of Pediatric
Surgery and Urology Faculty of Medical
Sciences in Katowice, Medical
University of Silesia

Keywords: Open spina bifida, myelomeningocele, open
fetal surgery, Chiari II malformation

Abstract:

Background: Myelomeningocele is a severe, non-lethal, congenital disorder and the most common defect of the central nervous system. It arises from abnormalities in the process of neurulation of the primary neural tube, which occurs around 24-28th day of fetal life. The natural course of the defect causes progressive hydrocephalus, intrusion of the structures of the posterior cerebrum into the medullary canal (Chiari II malformation). Throughout pregnancy, both amniotic fluid and mechanical irritation of the spinal cord exacerbate, leading to increased neuromotor disorders and the need for ventriculo-peritoneal valve implantation. These fundamental facts became the basis for the use of open fetal surgery (OFS) for fetuses affected by open spina bifida (OSB).

Material and Methods: The data presented are the center's experiences in fetal therapy for OSB from 2004-2024 on a group of more than 200 patients operated mainly by OFS.

Results: Like any fetal surgery center, we are subject to a learning curve. Implementing manual hysterotomy and hysterorhaphy, incorporating a diode laser into the instrumentation, and modifying the tocolytic protocol reduced the amount of premature amniotic fluid drainage before 37 weeks of gestation from 52.2% to 19%. In addition, it also reduced the incidence of premature separation of amniotic membranes from 17.3% - 6.8%. Another beneficial effect of the above measures was a reduction in the incidence of uterine contraction activity before 37 weeks from 56% to 17.2%.

Conclusion: We would like to emphasize that as of the date of this paper, only OFS has the status of neurosurgical correction. Implementation of manual methods of hysterotomy and hysterorhaphy, which guarantee watertight closure of the uterus, thus contributing to prolonging the average duration of pregnancy thus protecting the operated in-utero patients from the effects of prematurity, which worsen the overall end results of neurodevelopment. In addition, OFS significantly reduces the need for ventriculo-peritoneal systems postnatally and improves social dryness.

Title:

A new potential non-invasive diagnostic method
for stress incontinence

Authors:

Lóránt Csákány¹, Norbert Pásztor¹,
Szabolcs Várbíró¹, Gábor Németh¹,
Andrea Surányi¹

Affiliations:

1: University of Szeged, Department of
Obstetrics and Gynecology

Keywords: sonoelastography, stress urinary
incontinence

Abstract:

Background: The most common type of urinary incontinence is stress urinary incontinence (SUI), which is characterized by the involuntary loss of urine during everyday activities. This compromising the quality of life for women. SUI presents as a consequence of lower urinary tract dysfunction coupled with weakened pelvic floor tissues. Primary issue is the lack of tissue support to

the upper urethra and bladder outlet. The aim of our study to assess the condition of the pelvic floor tissues in women suffering from stress incontinence, and to map the weak points of the pelvic floor using ultrasound elastography.

Material and Methods: We recruited 40 patients for the study, from the Urogynecology Department of the Obstetrics and Gynecology Clinic at the University of Szeged. Half of the women were asymptomatic and formed the control group, while the other half suffered from stress incontinence.

Two different ultrasound methods were employed in our research:

I.) Transvaginal 2D ultrasound to examine the mobility of the bladder neck and urethra

II.) Transvaginal sonoelastography to determine the elasticity of the paraurethral connective tissues, in 3 points:

1.) Tissue environment surrounding the internal sphincter muscle of the bladder

2.) Endopelvic fascia and tissue environment in the midsection of the urethra

3.) Tissues surrounding the external urethral orifice

Results: Significant correlations were found between the mobility of the bladder neck - urethra and changes in the elasticity of the paraurethral connective tissues. The sonoelastography results showed a close relationship with the patient's age and BMI values.

Conclusion: Sonoelastography is a non-invasive imaging method with the potential to semiquantitatively assess

the elasticity properties of in-vivo tissues. We hope that our findings contribute to the objective assessment of incontinence and the monitoring of treatments effectiveness, last but not least it enables more effective personalized treatment methods.

Title:

THE ROLE OF ELASTOGRAPHY IN THE
IDENTIFICATION OF STRUCTURAL AND
FUNCTIONAL ABNORMALITIES OF THE
PLACENTA

Authors:

Bálint Kolcsár, Szabolcs Várbíró, Gábor
Németh, Andrea Surányi

Affiliatons:

University of Szeged, Obstetric and
Gynecology Department, Hungary

Keywords: elastography, placenta, adverse pregnancy
outcomes

Abstract:

Background: The placenta plays an extremely important role throughout pregnancy, as it is an organ that enables the exchange of nutrients, oxygen, carbon dioxide and waste products between the maternal and fetal blood vessels. It is known that the structural and functional disorder of the placenta is responsible for a significant

part of unfavorable pregnancy outcomes. Ultrasound elastography is a technique used to quantify biomechanical changes in diseased parenchymal tissue. The purpose of our research was to monitor the structural changes of the placenta during pregnancy using ultrasound elastography, and to verify that changes in elasticity are suitable for identifying adverse pregnancy outcomes.

Material and Methods: We included 40 pregnant women who appeared for ultrasound examinations in the framework of pregnancy care at the Obstetrics and Gynecology Clinic of SZTE, who were in the 12th-13th, 19-22nd and 30-40 weeks. We performed an elastographic measurement during the first week of pregnancy. We compared these data with adverse events occurring during pregnancy.

Results: Changes in elastography elasticity values show a correlation with the development of adverse pregnancy outcomes.

Conclusion: Elastography is a non-invasive imaging method that has the potential to semi-quantitatively assess the elasticity properties of tissues in vivo, so in the case of the placenta, it can objectify its changes in elasticity. Possible adverse pregnancy outcomes can be predicted with this method. We are confident that our results will contribute to the objective assessment of the prenatal condition of the uteroplacental unit, to the monitoring of the effectiveness of the necessary treatment resulting from its condition and will enable the

development of even more effective treatment methods and their timely application.

Funding: University of Szeged, Albert Szentgyörgyi Medical School, Faculty Research Grant, Géza Hetényi Fund (No: 5S 724 (A202))

Title:

PREECLAMPSIA: EMPHASIZE THE ULTRASOUND
INVESTIGATIONS

Authors:

Surányi, Andrea

Affiliations:

Department of Obstetrics and
Gynecology, University of Szeged,
Szeged, Hungary

Keywords: obstetrics, preeclampsia, 3-D ultrasound,
placenta, vascularization

Abstract:

Background: One of the most important tasks of modern perinatology is the early diagnosis and prevention of high-risk pregnancies. In high-risk pregnancies, one of the main problems is the abnormal placental circulation, which can even lead to endogenous stress. All of this ensures the redistribution of the fetal circulation, which affects the arterial circulation and oxygenisation of fetus.

Material and Methods: Using the three-dimensional power Doppler technique we investigated the in vivo vascularization (vascularization index, flow index, vascularization flow index) and volume changes of the placenta in the second and third trimesters of high-risk pregnant women with high blood pressure (gestational hypertension (GHT), chronic hypertension (CHT), preeclampsia (PE)).

Results: Placental vascularization indices were significant differences between groups examined. Especially 3-D power Doppler index flow index presented good correlation between pregnancy pathology and adverse pregnancy outcome. Twenty percent of CHT placentas were hypovascularized, more than two-third of GHT placentas showed hypovascularization, and all placentas were hypovascularized in the PE group. Severe interstitial fibrosis, explicit intervillous and perivillous fibrin deposits and intermediate or explicit number of syncytial knots were found in placental histopathological analyses, which had caused placental volume reduction as well. We found volume reduction in one-third of CHT, half of GHT and all of PE placentas.

Conclusion: First-trimester screening for preeclampsia has been introduced in our institute, which may be of particular importance among primipara pregnant women. Second trimester screening for vascularization and volume measurement is important to highlight the most serious cases.

Funding: University of Szeged, Albert Szentgyörgyi
Medical School, Faculty Research Grant, Géza Hetényi
Fund [No.:5S 724 (A202)]

Title:

OB-GYN MEDICAL TRAINING AND
SPECIALIZATION IN ROMANIA

Authors:

Marius Craina, Elena Bernad

Affiliatons:

“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania

“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
Center for Laparoscopy, Laparoscopic
Surgery and In Vitro Fertilization,
Timisoara, Romania

Keywords: Obstetrics-gynecology, training,
specialization, competence

Abstract:

Background: Obstetrics-gynecology (OB-GYN) is a medical-surgical speciality that requires specialized training for doctors who will evaluate, diagnose, and treat

problems related to the genital sphere. Our goal is to present the training and specialization possibilities available in Romania.

Material and Methods: We conducted a study on the changes in the training curriculum in the obstetrics-gynaecology speciality, insisting on the current training possibilities in this field.

Results: The training period for a doctor to become a specialist in obstetrics-gynecology is five years. The training curriculum is structured in 14 modules, which are recommended to be completed in a specific order to facilitate the correct acquisition of specialized notions and practices. During this period, the doctor benefits from both theoretical and practical training. After obtaining the obstetrics-gynaecology specialist diploma, the doctor has the opportunity to attend courses to pass competency exams in: obstetrical and gynaecological ultrasonography, laparoscopic gynaecological surgery, hysteroscopy, colposcopy, couple infertility treatment, assisted human reproduction and in, vitro fertilization, maternal-fetal medicine, oncological gynaecology, urogynecology, sexology.

Conclusion: Completing all the mandatory modules takes time, but the OB-GYN speciality offers a wide range of possibilities for subsequent attestation, allowing the doctor to overspecialize in this field of reproductive health.

Title:

USING NEW TECHNOLOGIES IN MEDICAL EDUCATION AND TRAINING

Authors:

Mihaela Crişan-Vida¹, Lăcrămioara
Stoicu-Tivadar¹, Robert Leonard
Bernad¹, Elena Bernad^{2,3,4}

Affiliations:

1Politehnica University Timisoara,
Romania;
2“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
3“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
4Center for Laparoscopy, Laparoscopic
Surgery and In Vitro Fertilization,

Keywords: digital health, technologies, training, Artificial
Intelligence, Virtual Reality, Augmented Reality,
Telemedicine, Internet of Things.

Abstract:

Background: Integrating new technologies in medical education and training is important for the trainees, improving the learning experience and to improve the patient care outcomes, with better diagnosis and treatment. Using different technologies and tools, as Virtual Reality, Augmented Reality, is beneficial for training the medical students and staff without risk to the patients. Furthermore, Artificial Intelligence may personalize the learners' experiences by adjusting content and difficulty based on their experience.

Material and Methods: Will provide a description of the technologies which can help the medical learners to gain skills in digital health, very important in improving the patient care and the patients to receive better treatments. The following subjects will be discussed: Artificial Intelligence in Medicine, Virtual Reality, Augmented Reality, Telemedicine and Internet of Things. Results: It will be described how technologies may be a great support and will recommend the specific domains. In this way the learners will have the possibility to have a summary of technologies which can be used in digital health.

Conclusion: It is important that the medical personnel to have this type of information because they have the possibility to choose what it is interesting for them.

Title:

Impact of implementation of an enhanced recovery (ERAS) program in gynecology on healthcare costs: A single-centre experience

Authors:

Markéta Malecová, Peter Koliba, Pavel Kabele, Oľga Dubová, Michal Zikán, Tomáš Brtnický

Affiliations:

Department of Obstetrics and Gynaecology of the 1st Faculty of Medicine and Bulovka Hospital, Prague, Czech Republic

Keywords: ERAS, ICU, oncogynecology, recovery, financial cost of treatment

Abstract:

Background:

ERAS is a multimodal perioperative care aimed at achieving early recovery for patients undergoing surgery. This concept of a multimodal approach to the patient

referred for surgery was first introduced by Prof. Kehlet in the 1990s. This program fully implements and regularly updates perioperative management based on evidence-based medicine to standardize patient care and mitigate pathophysiological dysfunctions that can arise from surgery and postoperative recovery. Key interventions include adequate preoperative patient education, minimization of preoperative fasting, preoperative administration of carbohydrate solutions, intraoperative euvoemia, standardized opioid-sparing analgesia, prevention of postoperative nausea and vomiting, and early postoperative patient mobilization. From published studies, cost reductions have been demonstrated following the implementation of ERAS programs in various surgical specialties as the secondary outcome.

Material and Methods:

A total of 604 patients were evaluated in the study. We implemented the ERAS protocol at our institution in 2022 and enrolled a total of 163 patients in the ERAS program (period 03-09/2022). In 2023, a total of 226 patients were enrolled in the program (period 01-09/2023). In contrast, a comparison group was established in 2019 (period 03-09/2019), where 215 cases met similar criteria (see Fig. 1). Thus, this is a retrospective study in which we evaluated three groups of patients according to the ERAS clinical protocol (hereafter referred to as CP): 1. CP oncogynecology, 2. CP simple hysterectomy, 3. CP laparoscopy. The selection of the 2019 control group and the data cleaning methodology was done subsequently. To calculate bed-day savings, data were prorated to a full

12 months of the year for all three study groups. We chose three parameters to compare direct treatment costs: antibiotic consumption, blood derivative consumption, and laboratory testing costs. Due to the increase in the price of direct treatment costs, the prices of antibiotics, blood derivatives, and laboratory testing costs were compared at 2019 levels in all three observed groups.

Statistical significance of the difference in the observed parameters was tested by two-sample unpaired t-test with unequal variances at the 0.05 significance level.

Results:

The retrospective study included a total of 604 patients. Namely, 196 patients in the oncogynecology CP, 230 patients in the hysterectomy CP, and 178 patients in the laparoscopy CP (see Fig. 1).

Length of hospital stay (LOS)

In the oncogynaecology group, the total LOS was reduced from 11.1 days to 6.8 days (2022) and 7.6 days (2023) compared to 2019. There was also a standardization of the length of preoperative hospitalization from 2.0 days (2019) to 1.0 (2022) and 1.4 (2023), respectively. In postoperative care, there was a reduction in ICU LOS from 2.9 (2019) to 1.6 (2022) and 1.8 (2023), respectively ($p < 0.05$) (see Fig. 2).

In the group - CP hysterectomy, there was a reduction in total LOS from 6.5 days (2019) to 5.0 days (2022, 2023) ($p < 0.05$). There was a standardization of preoperative LOS and a reduction in postoperative ICU and standard room stay (see Fig. 3).

In the group - CP laparoscopy, the LOS was reduced from 4.5 days (2019) to 3.1 days (2022) and 2.9 days (2023), respectively ($p < 0.05$). The majority of patients were admitted on the day of surgery, and in 2023, one-third of patients were not admitted to the ICU after surgery at all (see Fig. 4).

Hospital Bed-day saving

In the group - CP oncogynecology, the ICU stay was reduced by 1.1 days and the standard room stay by 2.4 days (comparison of 2019 and 2023). Therefore, the calculated annual inpatient savings calculated on the number of cases in 2023 (annualized) corresponded to a total of 132 days in the ICU and 288 days in the standard room. The potential number of cases with oncogynecological diagnosis that could be treated additionally was calculated to be 73 cases per year in the ICU and 59 cases in a standard room. Due to the annual savings in the ICU and standard room, approximately 59 additional patients can be admitted for oncogynaecology procedures under the current length of stay (2023) as a result of the freed-up capacity.

In the group - CP hysterectomy, there was a total annual saving of 40 ICU days and 109 bed days in a standard room. With this reduction, approximately 36 additional patients could be admitted for the simple hysterectomy procedure under the current LOS (2023).

In the group - CP laparoscopy, the calculated annual savings were 25 bed-days in the ICU and 108 bed-days in the standard room. This saving allows for approximately

36 additional patients undergoing laparoscopic procedures over the current LOS (2023).

Direct costs of transfusions, antibiotics and laboratory tests

In the group - CP oncogynecology, the average cost of laboratory tests, antibiotics, and transfusions was lower in both 2022 and 2023 compared to 2019. However, the results were not statistically significant at the 0.05 significance level.

In the group - CP hysterectomy, the reduction in cost statistics was only significant for antibiotic administration, and this was in the 2023 versus 2019 comparison. The results were not statistically significant for laboratory testing and transfusion costs.

In the group – CP laparoscopy, there was a statistically significant reduction in the cost of laboratory testing in 2023 compared to 2019 . No statistically significant reduction in financial costs was found in the remaining parameters monitored (antibiotics and transfusion).

Conclusion:

We have demonstrated cost savings particularly in the reduction of LOS. However, reduced direct costs, such as antibiotic consumption and laboratory costs, have also contributed significantly. Ultimately, the implementation of the ERAS protocol at our institution has demonstrated that better quality medicine based on best clinical practice can be implemented, reducing the cost of care while freeing up bed capacity for additional patients. This results in improved quality of care, overall capacity savings and reduced financial costs of treatment.

Title:

Combining Molecular and Traditional Prognostic
Factors: A Holistic Approach to Breast Cancer
Prognostication

Authors:

Melinda-Ildiko Mitranovici 1, Liviu
Moraru 2*, Raluca Moraru 3, Septimiu
Voidazan 4, Mihai Munteanu 5, Oala
Ioan-Emilian¹, Rares Georgescu⁶, Dan
Costachescu 7 and Sabin Gligore
Turdean 8

Affiliations:

1. Department of Obstetrics and
Gynecology, Emergency County
Hospital Hunedoara

Keywords: Breast cancer, prognostic factor, molecular
biomarkers

Abstract:

Background: Breast cancer is a heterogeneous disease
with varied morphology and molecular features, being

the second cause of cancer death in women in developed countries. According to the literature, we currently are lacking both prognostic biomarkers and therapeutic targets. The most important prognostic factors remained disease stage and Nottingham grade.

Material and Methods: We conducted a retrospective analysis involving 273 patients with BC who underwent neoadjuvant therapy, before proceeding to curative surgical treatment between January 1, 2014, and December 31, 2023. Pathological procedures were conducted at the Department of Pathology, Emergency County Hospital of Targu Mureş, Romania. Statistical analysis was performed.

Results: Between Nottingham grade and Ki67, grade I is rather associated with Ki67 less than 14. The situation is similar in the relationship between tumor grade and Luminal (p-0.0001), grade I is associated with category A Luminal. Regarding the TNM stage, it is statistically significantly correlated with TILs (p-0.01) and RCB (p-0.0001). Stage III and IV are associated with high RCB and poor prognosis.

Conclusion: Both Nottingham grade 3 and TNM stage III and IV are linked to decreased overall survival and disease-free survival, indicating a poor prognosis. Additionally, the residual cancer burden (RCB) stands out as having the most significant prognostic impact.

Title:

MATERNAL BIRTH INJURIES IN BREECH
DELIVERY

Authors:

Aleksa, Jokic, 1; Tijana, Grujic, 1

Affiliations:

1 - Obstetrics & Gynaecology
University Clinic "Narodni front",
Belgrade, Serbia

Keywords: breech, cephalic, injury

Abstract:

Background: There are studies that showed the completion of breech deliveries by cesarean section is associated with significantly lower perinatal and neonatal mortality, with no significant differences in maternal morbidity. The aim of this study was to examine the effect of vaginal delivery in breech presentation on the frequency of soft-tissue birth canal injuries.

Material and Methods: We conducted a retrospective analysis of patients delivered at the Gynecology and

Obstetrics Clinic "Narodni front" in 2023. Only patients with singleton pregnancies were included in the study. Differences were evaluated using the t-test for two independent samples, the Mann-Whitney U test, and the chi-square test. A p-value of less than 0.05 was deemed statistically significant. The data were analyzed using SPSS version 21.0 (SPSS Inc., Chicago, IL).

Results: Of 6,419 singleton pregnancies, 249 (3.88%) were breech presentation - 34.9% delivered vaginally and 65.46% in the operating room. The number of cephalic deliveries was 6101 (95%). Frequency of any soft birth canal injury was 33.11% for cephalic and 8.43% for breech presentation, with the disparity being statistically significant. In both, cervical injuries were the most common (accounting for 70% of injuries in cephalic and 80% in breech). Vaginal mucosa ruptures were the second most common, followed by perineal injuries of varying degrees. The only significant difference noted was the rate of cervical ruptures, which was 23% in cephalic and 6.8% in breech presentation. Perineal and vaginal injuries were also more prevalent in cephalic - 3.45% versus 0.4% and 5.4% versus 1.2%, respectively - but without statistical significance.

Conclusion: Our preliminary findings suggest that breech presentation carries lower risk of uterine cervix rupture during delivery and probably lower risk of other soft-tissue injuries than cephalic presentation. In addition, in our institution, the cesarean section rate is nearly twice as high in breech compared to cephalic presentation.

Title:

Comparison of the clinical efficacy of surgical versus medical method for first trimester pregnancy termination at The Obstetrics and Gynecology Clinic Narodni front in Belgrade

Authors:

Aleksa Radojic, Bobana Ivanovic

Affiliatons:

Keywords: surgical abortion, dilatation and curettage, pregnancy termination

Abstract:

Background: Surgical abortion by vacuum aspiration or dilatation and curettage has been the method of choice for early pregnancy termination since the 1960s. Medical abortion became an alternative method of first trimester pregnancy termination with the availability of prostaglandins in the early 1970s and anti-progesterones in the 1980s. Nowadays, both options for management of pregnancy termination are acceptable in practice, but deciding what the best method is not clear always. This

study aimed to compare clinical efficacy, outcomes, and patient acceptance of dilatation and curettage (D and C) versus medical abortion at The Obstetrics and Gynecology Clinic Narodni front in Belgrade.

Material and Methods: A prospective study was conducted from January 2023 to January 2024. Demographic, medical and clinical data were recorded from the patient's medical history. Data were analyzed with IBM SPSS Statistics 22 using descriptive statistics, independent t-test and non-parametric tests.

Results: From the total number of 734 patients included in this study, 601 patients underwent the surgical method of abortion using dilatation and curettage (D and C), and 133 patients underwent medical method of abortion. The complication rate among surgical abortion patients is significantly more than that of medical abortion patients. Surgical abortion patients have experienced higher levels of ongoing bleeding, symptoms of pelvic infection and reintervention, but better acceptance has been reported by surgical group patients in comparison to the medical group patients (65.7% vs. 34.3%).

Conclusion: The surgical method of abortion using D and C is associated with better acceptance among women included in this study, but resulted in a greater number of complications in comparison to medical method.

Title:

META-ANALYSIS COMPARING THE RISK OF
SYMPTOMATOLOGY IMPACTING QUALITY OF LIFE
IN NATURAL MENOPAUSE VERSUS PREMATURE
MENOPAUSE

Authors:

Ardelean Anamaria¹², Furău
Gheorghe¹², Furău Cristian¹², Vornic
Ioana¹², Toduț Oana¹²

Affiliations:

¹Western University „Vasile Goldiș“ of
Arad, ²Arad County Emergency Clinical
Hospital

Keywords: menopause, quality of life, menopause
symptoms, network meta-analysis

Abstract:

Background: Menopause, encompassing both its
premature and natural variations, significantly impacts
women's health, affecting their quality of life through a
range of symptoms including osteoporosis,

cardiovascular complications, and alterations in the vaginal mucosa. Given its substantial geographic and demographic variations, menopause influences diverse segments of the global female population in varying degrees, including cultural settings as the United States, United Kingdom, Japan, China, Greece, Turkey, Egypt and also Romania.

Material and Methods: The study utilized a network meta-analysis approach to systematically compare the effects of premature and natural menopause. Data were meticulously extracted from three distinct studies, each assessing the symptomatology of menopause and its impact on quality of life across various geographic and cultural settings.

Results: The comprehensive analysis included a total of 987 women, revealing the prevalence of symptoms such as insomnia (67%), asthenia (68%), irritability (66.66%), hot flashes (47.11%), and dyspareunia (27.05%). Notably, natural menopause exhibited a higher incidence of hot flashes and insomnia compared to premature menopause, which demonstrated higher rates of dyspareunia and irritability.

Conclusion: Natural and premature menopause present distinct symptomatic profiles, significantly affecting quality of life in different ways. These findings emphasize the necessity for a personalized approach in the management of menopause, advocating for specific interventions that directly address the varied symptoms encountered by women.

Title:

INFLUENCE OF PSYCHOSOCIAL FACTORS ON
CARDIOVASCULAR HEALTH IN PREGNANCY

Authors:

Brenda Bernad¹, Lavinia Hoge¹, Paula
Teodora Bâte¹, Roxana Daciana
Barbu¹, Vlad Nicoras², Elena
Bernad^{1,2}, Mirela Tomescu^{1,3}

Affiliations:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
2“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
3 Timisoara Municipal Clinical
Emergency Hospital, Timișoara,
Romania

Keywords: Keywords: pregnancy, fetus, psycho-social
factors, cardiovascular health

Abstract:

Background: Pregnancy is a period of significant metabolic and hemodynamic changes in the mother's body, as it adapts to the new status. However, these processes can be negatively influenced by various factors, leading to the development of pregnancy-related pathologies that can affect both maternal and fetal health. Our study, unique in its focus on the relationship between psychosocial factors and cardiovascular diseases in pregnancy, aims to shed light on this crucial aspect of maternal health.

Material and Methods: We conducted a prospective study based on questionnaires, which were applied to 150 pregnant women who were admitted to the Obstetrics-Gynecology Clinic I of the Emergency County Hospital in Timisoara between 2022 and 2023.

Results: The research proved the definite link between the detected psychosocial factors and the cardiovascular pathology induced by pregnancy. Stress and anxiety during pregnancy have a negative influence on the evolution of pregnancy, favoring the appearance of pathologies associated with this period.

Conclusion: The findings of our study highlight the crucial role of evaluating pregnant women for the presence of psychosocial risk factors during pregnancy. This can be done through the application of specific questionnaires, a simple yet effective tool. This evaluation is not only important to avoid complications but also to apply the necessary intervention measures as early as possible,

thereby significantly improving the outcomes for both the mother and the baby.

Title:

Clinical efficacy of medical method for first trimester pregnancy termination at The Obstetrics and Gynecology Clinic Narodni front in Belgrade

Authors:

Bobana Ivanovic, Aleksa Radojicic

Affiliatons:

Keywords: medical abortion, mifepristone, misoprostol, dilatation and curettage

Abstract:

Background: Abortion is a health care intervention that can be effectively done using surgical or medical procedures. These options for management of pregnancy termination are both acceptable in practice but differ in clinical efficacy, patient experiences and costs, and deciding what the best method is not clear always. This study aimed to present clinical efficacy, outcomes, and patient acceptance of medical abortion using mifepristone and misoprostol for first trimester

pregnancy termination at The Obstetrics and Gynecology Clinic Narodni front in Belgrade.

Material and Methods: A prospective study was conducted from January 2023 to January 2024. Demographic, medical and clinical data were recorded from the patient's medical history. Data were analyzed with IBM SPSS Statistics 22 using descriptive statistics, independent t-test and non-parametric tests.

Results: Finally, 734 patients were included in this study. From the total number of patients, 133 patients underwent medical method of abortion and 601 patients underwent the surgical method of abortion using dilatation and curettage (D and C). The complication rate among medical abortion patients is significantly less than that of surgical abortion patients. The higher level of acceptance has been reported by surgical group patients in comparison to the medical group patients (65.7% vs. 34.3%).

Conclusion: The medical method of abortion using mifepristone and misoprostol is a very safe and highly successful option for first trimester pregnancy termination, associated with less complications. However, in comparison to the medical method, the surgical method of abortion using D and C is associated with better acceptance among women included in this study. Careful evaluation and selection of women who would be eligible for medical termination of pregnancy is necessary.

Title:

THE STUDY OF EXPERIENCES DURING THE
GESTATION PERIOD

Authors:

Carla Pop¹, Brenda Bernad¹, Lavinia
Hogea¹, Vlad Nicoras², Marius
Craina^{1,2}, Elena Bernad^{1,2}

Affiliatons:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
2“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
3 Timisoara Municipal Clinical
Emergency Hospital, Timișoara,
Romania

Keywords: pregnancy, experience, stress, fetal

Abstract:

Background: During the gestation period, the pregnant woman can experience symptoms and emotions that she has not experienced until that moment. Concerns about one's own health, the progress of the pregnancy, and the health of the fetus and the future child become increasingly accentuated as the pregnancy approaches term. This research aimed to study the positive and negative experiences experienced during pregnancy.

Material and Methods: We are conducting a questionnaire-based study, applying the Pregnancy Experience Scale, a summative Likert scale, in four steps. The questionnaire was administered to pregnant women over the age of 18. Descriptive statistics were used for data analysis.

Results: With the help of this questionnaire, data related to positive and negative views during pregnancy were collected. It was observed that most women perceived their pregnancies positively rather than with negative feelings. The degree to which women felt that life, in general, was stressful was strongly related to the degree of pregnancy-specific inconvenience. Although the relationship between lifts and non-pregnancy-specific stress rating was generally inverse, the effects varied by gestation. The degree to which pregnant women find their experience distressing as opposed to uplifting consistently correlates with measures of non-pregnancy-specific stress.

Conclusion: Despite substantial interest in the effects of stress on pregnancy, few instruments are available to measure it. Many participants experienced a sense of loss

that may permeate other aspects of their lives. Applying this questionnaire that measures pregnancy-specific stressors to all pregnant women would allow the identification of women who experience negative feelings during pregnancy and would facilitate the application of prompt interventions.

Title:

SCREENING FOR CERVICAL CANCER AND
DIABETES MELLITUS AS A POTENTIAL RISK
FACTOR

Authors:

1Indra Marica, 1Marcu Valentina,
1,2Blidisel Alexandru, 1,3Craina
Marius, 1,3Bernad Elena

Affiliatons:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
2Timisoara Municipal Clinical
Emergency Hospital, Timișoara,
Romania
3 “Pius Brînzeu” County Emergency
Hospital Timișoara, Romania

Keywords: cervical cancer, diabetes mellitus,
prediabetes, glycated hemoglobin, PAP smear

Abstract:

Background: Cervical cancer and diabetes mellitus are two major public health issues significantly affecting global morbidity and mortality. Early screening for these conditions is essential for prompt intervention, preventing severe complications, and improving patient outcomes. The connection between these diseases lies in their negative impact on quality of life and the fact that hyperglycemia can promote the onset and development of infections, including HPV, thereby increasing the likelihood of cervical cancer.

Material and Methods: The study includes a cohort of 229 women aged between 20 and 81, with an average age of 48.19, most of whom are from rural areas. Concurrent samples for PAP smear and glycated hemoglobin were collected from these women for cervical cancer and diabetes mellitus screening. The samples were collected between August 10 and October 15, 2022, from individuals residing in Timiș, Caraș-Severin, and Mehedinți counties.

Results: Of the 229 women, 86 (37.55%) were diagnosed with prediabetes and 19 (8.30%) with diabetes. Correlating PAP smear changes with HbA1c levels showed that among the prediabetic women, 2 had cellular anomalies, 10 had infections, 72 had nonspecific inflammation, and 79 had atrophy. Among the diabetic women, 16 had nonspecific inflammation, and 15 had atrophy. One hundred thirty-six women, primarily from rural areas, reported difficulties accessing medical

services. The screening campaign identified five neoplastic changes and 102 elevated HbA1c levels.

Conclusion: Five individuals were identified with neoplastic changes and 102 with elevated glycated hemoglobin levels following this screening campaign. These results might not have been discovered in time, potentially leading to complications. Therefore, organizing screening campaigns and ensuring high participation rates are essential for public health.

Title:

THE STUDY OF EXPERIENCES DURING THE
GESTATION PERIOD

Authors:

Carla Pop¹, Brenda Bernad¹, Lavinia
Hogea¹, Vlad Nicoras², Marius
Craina^{1,2}, Elena Bernad^{1,2}

Affiliations:

1“Victor Babes” University of Medicine
and Pharmacy from Timisoara,
Romania
2“Pius Brînzeu” County Emergency
Hospital Timișoara, Romania
3 Timisoara Municipal Clinical
Emergency Hospital, Timișoara,
Romania

Keywords: pregnancy, experience, stress, fetal

Abstract:

Background: During the gestation period, the pregnant woman can experience symptoms and emotions that she has not experienced until that moment. Concerns about one's own health, the progress of the pregnancy, and the health of the fetus and the future child become increasingly accentuated as the pregnancy approaches term. This research aimed to study the positive and negative experiences experienced during pregnancy.

Material and Methods: We are conducting a questionnaire-based study, applying the Pregnancy Experience Scale, a summative Likert scale, in four steps. The questionnaire was administered to pregnant women over the age of 18. Descriptive statistics were used for data analysis.

Results: With the help of this questionnaire, data related to positive and negative views during pregnancy were collected. It was observed that most women perceived their pregnancies positively rather than with negative feelings. The degree to which women felt that life, in general, was stressful was strongly related to the degree of pregnancy-specific inconvenience. Although the relationship between lifts and non-pregnancy-specific stress rating was generally inverse, the effects varied by gestation. The degree to which pregnant women find their experience distressing as opposed to uplifting consistently correlates with measures of non-pregnancy-specific stress.

Conclusion: Despite substantial interest in the effects of stress on pregnancy, few instruments are available to measure it. Many participants experienced a sense of loss

that may permeate other aspects of their lives. Applying this questionnaire that measures pregnancy-specific stressors to all pregnant women would allow the identification of women who experience negative feelings during pregnancy and would facilitate the application of prompt interventions.

Title:

THE MODE OF TERMINATING PREGNANCIES
COMPLICATED BY HYPERTENSION

Authors:

Tijana, Grujic, 1; Aleks, Jokic, 1

Affiliatons:

THE MODE OF TERMINATING
PREGNANCIES COMPLICATED BY
HYPERTENSION

Keywords: hypertension, cesarean section, vaginal delivery, preeclampsia

Abstract:

Background: Hypertension occurs as a complication of 2% to 10% of all pregnancies. It is the most common cause of morbidity and mortality among pregnant women. For this reason, we decided to investigate whether hypertension affects the mode of delivery in these high-risk pregnancies, specifically if deliveries are carried out vaginally or by cesarean section.

Material and Methods: We conducted a clinical, retrospective, observational study involving 10,398 pregnant women at the Narodni Front Obstetrics and Gynecology Clinic. The data was obtained from the Narodni Front maternity ward protocols. Exclusion criteria for the study were multiple pregnancies and unavailability of data. Descriptive and analytical statistical methods were employed in the study. SPSS statistical software was used for data analysis, and the significance of differences in the obtained data was tested using the chi-square test.

Results: We divided all pregnancies into two groups. The first group consisted of pregnancies that were not complicated by hypertension (94%), while the second group comprised pregnancies complicated by hypertension (6%). Among the pregnancies with hypertension, we further divided them into three subgroups - 20% with chronic hypertension, 80% with gestational hypertension, and a third group included pregnancies where any of the previously mentioned types of hypertension were superimposed with preeclampsia, totaling 47 cases, or 7.44% of all pregnant women with hypertension. We examined the mode of delivery in each of these three subgroups. There was a statistically significant difference in chronic (56.9%) and gestational hypertension (53.6%), with a higher frequency of cesarean sections in the group with chronic hypertension.

Conclusion: Most research on this topic has focused on the occurrence of preeclampsia and eclampsia, while only

a few studies have examined chronic and gestational hypertension as two distinct entities. In this sense, our findings could be significant and serve as a basis for further research on this topic.

Title:

Creatine for women: a review of the relationship between creatine and the reproductive cycle and female-specific benefits of creatine therapy

Authors:

Stacey J. Ellery¹

Affiliations:

David W. Walker¹ · Hayley Dickinson¹

Keywords: Women's health ; Nutrition ; Reproduction

Abstract:

Background:

- Creatine Metabolism: Creatine plays a crucial role in energy metabolism, particularly in muscle and brain tissues, and its supplementation has been studied for potential therapeutic benefits in various conditions, including psychiatric disorders and neuroprotection.
- Neuroprotection: Research indicates that creatine supplementation may protect against neuronal cell death during conditions like hypoxia-ischemia, particularly in

neonatal models, suggesting its potential in treating brain injuries.

- **Impact on Mental Health:** Studies have shown that creatine can influence mood and behavior, with evidence supporting its role in reducing depression-like symptoms in both animal models and potentially in humans, particularly in a sex-dependent manner.

Material and Methods:

- **Study Design:** The research involved a review of existing literature and experimental studies focusing on creatine metabolism, supplementation effects, and gender differences in various populations, particularly women during different reproductive stages.

- **Techniques Used:** Modern methodologies such as in vivo tracer and imaging techniques, high-throughput genomics, and magnetic resonance spectroscopy were employed to assess creatine dynamics and CK activity in tissues.

- **Population Studies:** Longitudinal studies were recommended to evaluate creatine homeostasis in women, considering factors like age, body composition, and reproductive cycle stages, with a focus on cohorts followed from conception through postpartum.

Results:

- **Sex-Specific Differences:** Findings indicate that males and females metabolize and utilize creatine differently, with females showing variations in CK activity influenced by hormonal changes throughout the menstrual cycle.

- **Creatine Supplementation Effects:** Evidence suggests that creatine supplementation may be more beneficial for women, particularly in alleviating depression, as it correlates with increased CK activity linked to estrogen levels.
- **Impact on Health:** Elevated serum CK levels were observed in pregnant women and newborns, indicating a potential role of creatine in maternal and neonatal health, while also highlighting the need for further research on its effects on bone health and regeneration in post-menopausal women.

Conclusion:

- **Need for Further Research:** The study emphasizes the necessity for modern investigations into sex-specific differences in creatine metabolism, particularly in women, to better understand the implications for health and disease.
- **Potential Therapeutic Benefits:** Creatine supplementation shows promise as a therapeutic intervention for conditions like depression and osteoarthritis, especially in women, suggesting a need for targeted studies.
- **Holistic Understanding:** A comprehensive understanding of creatine's role in energy metabolism and its interaction with hormonal changes is essential for developing effective nutritional strategies to improve health outcomes in women across different life stages.

Title:

**SONOGRAPHIC FEATURES OF THE NICHE IN THE
CESAREAN SECTION SCAR DEPENDING ON THE
DEGREE OF CERVICAL DILATION DURING LABOR
AND TECHNIQUE OF PREVIOUS
HYSTERORRHAPHY**

Authors:

Svetozar Đuranović¹, Arelena
Matičić^{1,2}, Aleksandra Vejnović^{1,2,3},
Tihomir Vejnović^{1,2,3}

Affiliations:

1 University of Novi Sad, Faculty of
Medicine, Department for Gynecology
and Obstetrics;
2 University Clinical Center of
Vojvodina, Clinic for Gynecology and
Obstetrics;
3 Egon and Ann Diczfalusy Foundation

Keywords: niche; cesarean section; cervical dilatation;
ultrasonography; hysterorrhaphy.

Abstract:

Background: the frequency of cesarean section (CS) and associated complications are increasing. A niche in the cesarean scar is associated with gynecological and obstetrical complications. Larger niches carry a greater risk of complications. Objective was to examine the sonographic features of the niche in CS scar depending on the degree of cervical dilatation during labor and technique of hysterorrhaphy in previous CS.

Material and Methods: research included 52 subjects who had first cesarean section at the Clinic for Gynecology and Obstetrics of the University Clinical Center of Vojvodina (UCCV), 4-12 months prior to the beginning of this research. With a one-time transvaginal ultrasound examination, niche parameters were measured according to the methodology of Jordans et al. The results were analyzed in relation to the dilatation of the cervix and technique of hysterorrhaphy (Modification Vejnović–MV; single layer–T1; double layer–T2).

Results: niche frequency was 98%. The mean values of the measured parameters were: length-6.32mm; depth-3.96mm; RMT-4.85mm; AMT-11.98mm; VV-12.89mm; SMU-34.59mm; width-6.81mm. No statistically significant difference was observed in the characteristics of the niche in relation to the dilatation of the cervix. RMT after MV was significantly bigger compared to T1 (5.87mm vs 4.27mm, $p=0.016$), and VV in MV was bigger than T2 (11.89mm vs. 2.50, $p=0.042$).

Conclusion: there is no significant difference in the size of the niche in the cesarean scar depending on cervical dilatation at delivery in patients operated at UCCV. The frequency of cervical incisions and large niches is low among patients operated at UCCV. The site of the hysterotomy probably has an importance in the formation of the niche, which is especially important in the case of emergency CSs. Modification Vejnović leads to a thicker residual myometrium, which has a protective effect on the development of large niches.

Title:

MYOMECTOMY DURING CESAREAN SECTION

Authors:

Milica Opačić¹, Aleksandra
Vejnović^{1,2,3}, Sara Đurica^{1,2}, Jovana
Rodić^{1,2}, Nikolina Tomašević^{1,2},
Tihomir Vejnović^{1,2,3}

Affiliatons:

1 University of Novi Sad, Faculty of
Medicine, Department for Gynecology
and Obstetrics;
2 University Clinical Center of
Vojvodina, Clinic for Gynecology and
Obstetrics;
3 Egon and Ann Diczfalusy Foundation.

Keywords: Cesarean section; myomectomy; obstetric
outcomes; blood loss; morcellation.

Abstract:

Background: Myomectomy performed during cesarean section (CS) presents a therapeutic challenge for obstetricians. The most common complication of this procedure is increased intraoperative bleeding.

Objective: Analysis and comparison of obstetric and perioperative outcomes in patients undergoing myomectomy during CS with those who only had a CS.

Material and Methods: The study was conducted as a retrospective case-control study. Patients who underwent myomectomy during CS comprised Group-M (N=141), while the control group (Group-C) consisted of patients who only had a CS regardless of the presence of fibroids (N=70). The following parameters were analyzed: demographic characteristics of patients, pregnancy characteristics, indications for cesarean section, perioperative parameters (size and position of fibroids, blood loss, blood transfusion, complications), duration of operation, and length of hospital stay.

Results: The duration of the operation was significantly longer in Group-M compared to Group-C (37.97 vs. 27.06 minutes, $p<0.001$). The size and number of removed fibroids were significant predictors of increased bleeding ($p<0.001$). Fibroids as the main indication for CS were identified as a predictor of higher intraoperative bleeding. Patients in Group-M had higher bloodloss and lower hemoglobin levels at discharge compared to Group-C. However, the average blood loss in both groups was less than 1000ml, and there was no difference in the frequency of blood transfusion. Hemorrhage and hematometra were more commonly observed in Group-

C ($p < 0.001$). Morcellation of fibroids larger than 10 cm was associated with less blood loss compared to the enucleation method, but statistical significance was not demonstrated ($p = 0.286$).

Conclusion: Myomectomy during cesarean section is a safe procedure when performed in appropriate indications and by experienced surgeons. Differences in obstetric and perioperative outcomes between patients undergoing myomectomy and those undergoing only a cesarean section are not clinically significant.

Title:

**PREGNANCY DATING IN IVF: A COMPARATIVE
ANALYSIS OF GESTATIONAL AGE ESTIMATION
FROM EMBRYO TRANSFER DATE AND
ULTRASOUND MEASUREMENTS OF CROWN-
RUMP LENGTH**

Authors:

Bojana Jovančević^{1,2}, Đorđe Ilić^{1,2}

Affiliations:

1University Clinical Center of
Vojvodina, Department of Obstetrics
and Gynecology, Novi Sad, Serbia
2University of Novi Sad, Faculty of
Medicine, Novi Sad, Serbia

Keywords: in-vitro fertilization, pregnancy dating, crown-rump length, embryo transfer, gestational age

Abstract:

Background: In in-vitro fertilization pregnancies, the true date of conception is known. Dating pregnancies only by

the known date of embryo transfer may lead to inaccuracies and mismanagement of prenatal care. Our study aimed to compare gestational age estimated by first-trimester ultrasound measurements with gestational age determined by the known date of embryo transfer.

Material and Methods: A retrospective study included 30 patients who conceived pregnancies through in-vitro fertilization. We included only patients with singleton pregnancies who underwent first-trimester ultrasound screening performed by a single sonographer between January 2008 and March 2024. We calculated gestational age for each patient based on ultrasound measurements of crown-rump length and the date of embryo transfer.

Results: Gestational age estimated by ultrasound in our study was statistically significantly higher. A mean difference was 0.9 days (± 2.14 , 95% confidence interval [0.1, 1.7]) ($p < 0.05$) and a median difference was 0.5 days (interquartile range 0-2.75) ($p < 0.05$).

Conclusion: Gestational age estimated by crown-rump length was higher. When dating pregnancies conceived through in-vitro fertilization by the known date of conception, it would be beneficial to also consider the date calculated from ultrasound measurements.

