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The current role of lasers in urogynaecology

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Introduction: The use of lasers to treat gynaecological and urogynaecological conditions including genitourinary syndrome of the menopause (GSM), stress urinary incontinence (SUI), vaginal prolapse and other conditions (such as lichen sclerosus), has become increasingly popular over recent years.
Approximately 35% of adult women are affected by UI. The main causes of SUI in women are weakening of the pelvic floor muscles and damage to the connective tissues which support the bladder and urethra. Physiotherapy is the first line treatment SUI but if this is insufficient, surgery is indicated, which targets the connective tissues of the endopelvic fascia. Collagen comprises up to 80% of the protein within the endopelvic fascia and is the primary structural component of the connective tissues. On the other hand, GSM is a chronic progressive condition that involves the genital and lower urinary tracts, related to the decrease of serum estrogenic levels when menopause occurs. Due to the chronic progressive trend of GSM, symptoms tend to reappear after the cessation of therapy, and frequently long-term treatment is required. Several energy based devices (EBD) have now been as an alternative treatment. However, each type of EBD has a different mode of action. CO2 fractional laser is ablative whereas Erbium YAG laser (Er: YAG) can be ablative or non-ablative.
Discussion: In the cases of GSM and SUI the non-ablative Er:YAG laser and the fractional microablative CO2 vaginal laser are the two main lasers evaluated for the treatment. For SUI treatment, lasers have been developed with the aim of promoting new collagen formation and strengthening of the suburethral hammock as an alternative treatment to surgery. Most of the studies demonstrate a positive outcome in patients with a beneficial safety profile. In studies of some EBDs over placebo intervention, active laser treatment demonstrates a superior effect over sham for treatment of SUI. It appears to be safe and effective treatment option for mild and moderate SUI. In the treatment of GSM, vaginal laser therapy has been demonstrated to be effective in restoring vaginal health, improving vulvovaginal symptoms and sexual function. As Lichen sclerosus is a chronic inflammatory skin disease mainly found in the anogenital area, predominantly in older (postmenopausal) women, laser therapy is a promising option for patients not responding to topical corticosteroid therapy or patients wishing to reduce long-term corticosteroid maintenance use.
Conclusion: The therapeutic role of laser treatment has been at the forefront of research. On hand, the published data in recent review by the EUGA Working Group on Laser suggest that both Er:YAG and CO2 vaginal lasers are safe energy-based therapeutic options for management of vulvovaginal atrophy and/or GSM symptoms in postmenopausal women and breast cancer survivors. But on the other hand, despite studies that have confirmed subjective and objective improvements in the symptoms of patients with SUI, there is still a lack of quality evidence in the form of multicentric, randomized, and placebo-controlled studies and several societies until now still do not recommend using vaginal lasers in routine clinical practice for SUI.

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Contemporary surgical approach in gynaecological oncology

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Primary treatment of early or localized gynaecologica cancers is based on surgical treatment. Gynaecological cancers are defined as cancers of the vulva, vagina, cervix, uterus and ovaries, Advances in our understanding of disease mechanisms lead to changes of also surgical approaches in order to improve patient outcomes. Herein some recent advances and future challenges in gynaecological cancer surgery are presented.

The first challenge in gynaecological cancers is the decision on the surgical approach. Through mainstreaming use of minimally invasive surgical approaches, laparoscopic techniques were also commonly introduced into treatment of cancers. Prospective trials and meta-analyses have shown that laparoscopic tretament is feasible in most women with endometrial cancer, but has shown inferior outcomes in cervical cancer. The LACC trial has reset open surgery again to the current golden standard of surgical treament. Studies are currently addressing the mechanisms underlying these findings.

The second challenge is the decision on when to escalate and de-escalate treatment of lymph-nodes in gynaecological cancers. In recent years, studies such as SENTIX and similar designs have shown the feasibility of using sentinel-lymph node biopsies instead of lymph-node dissections as treatment options. The question is how to best select patients deemed as high or low risk for lymph-node dissections or sentinel-node biopsies. Understanding of different risk to recurrence profiles has enabled us to develop trials currently running on the understanding of using the risk profiles in deciding surgical treatment in the future. A currently started trial on using molecular profiles to escalate or de-escalate surgical therapy is EUGENIE, which will be assessing molecular risk profiles and surgical staging to enable better surgical planning in endometrial cancer in the future.

Furthermore, in 2022 and 2023 there have been important advances in endometrial, vulvar, vaginal and ovarian cancer guidelines, which will be reviewed within this lecture.

Laparoscopic Reconstruction of the Cesarean Section Niche – a Series Report

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Introduction: Symptomatic C - Section niche (isthmocele) is a relatively rare complication of C -Sections (apr. 1,9% of cases). Considering that a C - Section is one of the most common surgical procedure in gynecology (20 to 30 % of deliveries in Serbia) it is not such a rare complication.

In 2018/2019 three patients with C - Section complications requested operative treatment for this disorder. They had one previous delivery by C - Section. Two had secondary infertility problems and all three had a significant decrease in life quality. They had prolonged menstrual periods, with brown discharge, lasting up to day 15 of the cycle. Two patients had dyspareunia and one had strong pains after intercourse. On Ultrasound exam the niche thickness in two of them was 3mm, and one had different thickness on the left side of the niche (5mm) and right side (2mm). The second patient had a previous attempt at hysteroscopic correction in 2017. They had different anamnesis prior to establishing the correct diagnosis. The first patient spent 4 years, being examined in Serbia, Bosnia and Germany before establishing the proper diagnosis. The second patient recognized her symptoms on an internet forum designed for patients – and went on to search for a doctor familiar with the topic. The third patient came because of strong pains during and after intercourse that deteriorated her life quality. This patient also had urinary discomfort as the bladder flap was elevated almost to the fundus of the uterus.

Procedure: All three patients were prepared and operated by the same surgical team. All of them were operated laparoscopically. First the adhesions between the uterus and the bladder were removed, then the bladder flap was separated and developed. Inserting a uterine probe transvaginaly exposed the niche. Then using a Ultracission device the niche was opened (resected). Finally the myometrium was reconstructed using 2.0 monifilament running suture in two layers. In two patients the bladder flap was repositioned, but in the third a third layer was reconstructed on the surface of the uterus, and the flap was not repositioned in order to prevent the urinary and dyspareunia complications she previously complained about. Average duration of the procedure was 2h.

Results: All three patients postoperatively had a checkup after their menstrual cycle. The thickness of the niche varied from 7 to 9 mm. Symptoms in all three of them have been completely resolved. So far only the first patient is preparing for an IVF pregnancy. The second patient is still planning when to get pregnant, and the third does not intend to.

Discusion: It can be concluded that laparoscopic reconstruction of the C - Section niche is a demanding but feasible technique, and it can be considered very beneficial to patients with symptoms

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Twenty Years of the National Cervical Cancer Prevention Program (ZORA) in Slovenia

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Introduction: Cervical cancer – CC is the fourth most common cancer among women worldwide. The majority of those affected and deceaded live in economically less developed countries, with an incidence rate higher than 30 per 100,000. Meanwhile, the incidence rate in developed countries ranges from 4 to 10 per 100,000. The global strategy of the WHO is to eliminate cervical cancer by 2030. To achieve this goal, it is necessary to vaccinate 90% of women against the HPV virus, involve more than 70% of women in screening programs, and adequately treat 90% of the women with precancerous and early changes in the cervix.(1)

Discussion: Twenty-five years ago (1998), a pilot study of an organized cervical cancer screening program began in tho regions of Slovenia. In 2003, twenty years ago, the National screening program called ZORA, for cervical cancer prevention was launched across the entire country. The program is carried out by gynecologists at the primary level of care, with coordination from the Oncology Institute in Ljubljana. Data is centrally collected in the Cancer Registry as legally mandated. The program is publicly funded and includes a Pap smear, HPV test, colposcopy and targeted biopsy. All women between the ages of 20 and 64 are included in the program, with Pap smears taken every three years after two consecutive negative results within a one-year interval.(2) From 2003 to 2019,the incidence of cervical cancer has decreased by 60%, going from >20 per 100,000 to <7 per 100,000.

Conclusion: In Slovenia, with the implementation of the national screening program ZORA, HPV testing, vaccination and microinvasive treatments for precancerous lesion (LLETZ, LV, etc), we have successfully reduced the incidence of cervical cancer by two-thirds (6-7/100000) according to our own Slovenian guidelines, all in line with WHO recommendations.(3) This has led us to achive results that place us among the best in Europe

and the world. Simultaneously we continue to stay updated and follow all the latest developmenta and recommendations in the field of cervical cancer prevention.[4]

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Heterotopic pregnancy - the challenges in clinical work – Case Report

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Introduction: The most common site of extrauterine pregnancy is Fallopian tubes.The incidence
of spontaneous heterotopic pregnancy is 1 in 30 000–1 in 50 000. The first case was reported in 1708 as an autopsy finding. Nowadays, however, it occurs with greater frequency, approximately 1 in 100 pregnancies, usually after in vitro fertilization (IVF). Heterotopic pregnancy may predispose a woman to life-threatening complications such as uterine rupture and massive bleeding.
Case Report: A 34-year-old woman came with 2 months of amenorrhea, complaints of abdominal pain for 2 days. She is gravida 2 abortion 1 with first spontaneous abortion, 170 cm, 82,0 kg, BMI 28,4; natural conception, US: 7 week amenorrhoic. St. post Appendectomy; 15 years ago.
Symptomathology: Acute abdominal pain, quickly began, rebound tenderness of the lower abdomen and predominantly right side.
By acute abdomen symptoms after 5 hours: Laparoscopy diagnostic, Salpingectomy left.
Blood deficit 1500ml.
Pathohystology: GEU l. sin.
Screening 1.Trimenon (St.post heterotopic grav.) 12+0 week – Test normal, Base risk 2-3%; NT without significance. Organ screening 18+1 without significance.
Regular pregnancy.
Disccussion: Heterotopic pregnancy can be a life-threatening condition and can be easily missed. A high index of suspicion is needed with risk factors for an ectopic pregnancy and in low-risk women with an intrauterine gestation who have free fluid with or without an adnexal mass or in those presenting acute abdominal pain and shock. The ectopic component is usually treated
surgically and the intrauterine one is expected to continue normally. The common presenting signs and symptoms are pain abdomen, adnexal mass, peritoneal irritation, and an enlarged uterus; abdominal pain was reported in 83% of cases and hypovolemic shock with abdominal tenderness was reported in 13% of cases of heterotopic pregnancies. Furthermore, 50% of the patients did not complain of vaginal bleeding. The sensitivity of TVS in diagnosing ectopic pregnancy is only 56% at 5–6 weeks. As many as 33% of heterotopic cases had prior sonography of a normal IUP which led to false reassurance and misdiagnosis. Studies report a wide variability for hCG concentrations in early pregnancy.
Conclusion: The diagnosis of heterotopic pregnancy is straightforward with the sonographic visualization of both an IUP; a complex adnexal mass containing either a yolk sac, embryo, or

fetal pole; or echogenic fluid in the posterior cul-de-sac. The difficulty lies in differentiating between an adnexal mass with a gestational sac present versus a hemorrhagic corpus luteal cyst. The first line of treatment is a salpingectomy. Patients who are hemodynamically unstable are more likely to require laparotomies to prevent hematoperitoneum and hypovolemic shock from a ruptured ectopic pregnancy. Extra precautions should be taken to avoid cannulation or excessive manipulation of the uterus in order to preserve the IUP.

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Probiotics in gynecology

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According to the WHO (World Health Organization) probiotics are living microorganisms that when administered in adequate amounts confer a beneficial health effect on the host. We have to distinguish some terms such as: prebiotics - foods (typically high-fiber foods) that act as food for human microflora; synbiotics refer to food ingredients or dietary supplements combining probiotics and prebiotics in a form of synergism; microbiome - collection of genomes from all the microorganisms in the environment; microbiota - all the microorganisms found in an environment, including bacteria, viruses, and fungi. There are approximately 39 trillion microbial cells – about 2kg of useful microorganism in our body, predominantly in the gastrointestinal and urogenital tract, oronasopharyngeal cavity and the skin. Genital microbiota in women is changing through the life.
Vaginal dysbiosis can cause vulvovaginal infections which are one of the most common reasons for visiting gynecologist. 75% of women suffer from vulvovaginal candidiasis (VVC) at least once in their life and 40-50% of them will have VVC at least one more time. Candida normally lives on skin and inside the body, such as the mouth, throat, gut, and vagina, without causing problems but if it grows out of control or if it enters deep into the body Candida can cause infections. Probiotics in gynecology restores healthy pH less than 4,5, they modulates cytokines to decrease inflammation, produces hydrogen peroxide that kills pathogens and lowers pH as well, produces bacteriocin that kills pathogens and produces biosurfactants which breakdown pathogen biofilm. It is important for genital probiotics to be specific for the vaginal mucosa, can restore rapid normalization of physiological conditions, have long lasting effect, and indication specificity. Probiotics help in the treatment of urogenital infections together with antibiotics and antimycotics and they are very useful
in prevention of infection recurrence and dysbiosis. It is important to emphasize that probiotics do not take the place of antibiotics or antifungals. Oral administration has some advantages compared to vaginal: oral preparations of probiotics remain intact during passage through the intestine and reach the rectum and colonize the vaginal tract via the ascending route, Lactobacillus colonization with additional immunomodulatory effects through the GI tract has been proven by a large number of studies, for the most women it is more comfortable for use and they can have greater number of strains. Seven strains in Bio-kult Candea strengthen the intestinal microflora and prevent Candida from finding attachment sites in the intestines to spread and they lower the pH of the gut so that

Candida is unable to spread. Proteus spp., Escherichia coli, Salmonella spp. and Staphylococcus aureus bacteria are sensitive to garlic (allicin) as well as Candida albicans which is particularly sensitive to it. Grapefruit extract has antimicrobial properties. Urogenital microbiome of healthy individuals differs from those with urinary tract infections (UTIs). Use of probiotics should be considered in UTIs management. Studies suggest that use of probiotics could significantly reduce number of recurrent UTIs, extend longer time of the first UTI and reduce use of antibiotics needed. Probiotics are safe and recommended by recent scientific articles for pregnancies too. According to research their use in the pregnant women and lactation might reduce some maternal and neonatal adverse effects such as: bacterial vaginosis, Candida infections, UTI, preterm birth, preeclampsia, gestational diabetes, constipation, perinatal anxiety and depression, mastitis, infantile colic, infant atopic dermatitis and atopy, etc. Probiotic alterations in the maternal microbiome may have long-
term effects on the foetal and neonatal microbime and health. Considering all the above, it is
reasonable to recommend probiotics with several different strains of microorganisms to pregnant and lactating women. There is new Bio-kult Pregnea which is excellent combination of different probiotic strains and folic acid, 2 in 1 supplement. In conclusion, probiotics in gynecology have a very wide range of possible applications and we can recommend them in all different periods of a womans life.

Ingredients in Cosmetics Harmful for Health and the Alternatives

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During 50 years of life roughly 500 kg of cosmetic ingredients enter the human body through the skin, mucosa, inhalation and ingestion!

Cosmetic products are applied from birth onwards, containing a range of chemicals for specific functions; UV filters; colourants; hardeners; preservatives; fragrances (parfumes); antioxidants; emollients/moisturisers; surfactants used as foaming agents and emulsifiers.

A survey recently conducted in France found an use of cosmetics products, with on average 18 cosmetics (each product contains cca 15 – 20 ingredients) being used daily by adult pregnant women, 16 by adult non-pregnant women, 8 by adult men, 7 by girls, 5 by boys and 6 for babies under 3 years.

Some chemicals used in cosmetics pose risks at very low doses and have been linked to serious health problems, including some types of cancer, endocrine diseases, reproductive and neurological harm, harm the immune system, alergies and developmental delays.

Many are linked to acute risks, like redness, itching, hair loss, rashes, blisters, nosebleeds.

The most often used are touched upon here: parabens, phtalates, heavy metals, mineral oils, silicones, formaldehyde, sulphates, synthetic UV filters, synthetic fragrances, propylenglycoles, ethanolamines, triclosan, toulene and talk.

Many ingredients once believed safe are no longer permitted in cosmetics.

More than 40 nations ban or restrict, more than 1.600 chemicals or contaminants in cosmetics and personal care products due to their toxicity, harmful influence to health, their tendency to bioaccumulate and their environmental impact.

What are the alternatives?

Alternatives to cosmetics containing ingredients harmful for health is to apply

CERTIFIED natural and organic products or products with identifiably safe ingredients, products without harmful ingredients and products containing more than 98 % of verified natural ingredients.

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The issue of endometrial cancer - controversies and challenges

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Introduction: Endometrial cancer today represents a very significant public health problem in Croatia as well as in the developed countries of the world. It is certain that, regardless of the technological progress we are witnessing, even today we associate numerous controversies with endometrial cancer. It is undeniable that there are still moments in the diagnosis and treatment of endometrial cancer that require very demanding action. It is certain that well-thought-out and multidisciplinary teamwork of experts from numerous fields guarantees the best results in the treatment of endometrial cancer. likewise, the personalization of medicine and the personalization of the relationship with each individual patient brings new challenges. In the same way, the entire health care system faces ever greater and more responsible demands. It is imperative for all of us to raise the quality of diagnostics in the treatment of endometrial cancer. The aforementioned imperative is imposed on all of us in our daily clinical work. Only by exceptionally improving the quality of our work and continuous training can we achieve better results in the diagnosis, treatment, care and prognosis of patients with endometrial cancer. It brings new paradigms to all of us that we need to actively adopt and implement in clinical practice.

Discussion: Today, hysteroscopy has an indispensable place in the diagnostic procedure, while the classic fractional curettage is obsolescent.The hysteroscopic approach is safe and very accurate and reliable, as long as it is applied with adherence to precisely defined procedures. in doing so, we must highlight the application of hysteroscopy with low intrauterine pressure values, in order to minimize the risk of the spread of malignant cells to the smallest possible extent. It is certain that with the progress of technology and past experiences, the application of hysteroscopy has given us an extremely high-quality tool in the diagnosis and treatment of endometrial cancer.

Conclusion: At the same time, the great advantages of hysteroscopy are its minimal invasiveness and very high accuracy. This is really helped by its excellent visualization, which enables precise taking of suspicious samples from targeted locations. On the basis of

the aforementioned, everything mentioned above guarantees us very good and high-quality results in the diagnosis and treatment of patients with endometrial cancer, and presents us with new challenges. Ultimately, it is in the interest of all of us to provide our patients with the best and highest quality treatment as well as prognosis.

Key words, Endometrial cancer, diagnosis, hysteroscopyLiterature:

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MODERN PERSPECTIVES IN THE DIAGNOSTICS OF PREINVASIVE CERVICAL LESIONS

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Prof. dr.sc. Blaženka Miškić, Faculty of dental medicine and healthcare Osijek, General hospital "dr. J. Benčević "Slavonski Brod, Internal department
dr. med. dent. Karla Miškić, Health Center Slavonski Brod

Preinvasive intraepithelial changes of the cervix, squamous and glandular intraepithelial lesions of the cervix are mainly diseases of women of reproductive age, changes that are invisible to the naked eye. The frequency of occurrence is affected by the economic development of the countries and related mass cytological screenings, sexual habits and influence of religion on the way of life. In recent years, there has been an increase in the frequency of cervical intraepithelial lesions worldwide, and a particular increase has been observed in adolescent girls and women up to 30 years of age (18,8/1000 women), SIL is being observed more and more often at younger ages, as well as HSIL, which used to appear at the age of 35-40, and now at the age of 25-29.

The diagnostics of cervical intraepithelial lesion is being performed by a Pap test (which was put into use in 1941), by colposcopy with a targeted biopsy and pathohistological analysis of the sample taken for analysis, and recently HPV testing or virus genotyping has been added to the classic diagnostic triad, the results of which can separate morphological from biological changes. All these methods are necessary for the overall diagnostic treatment of the resulting change.

The classification of the resulting changes changed its terminology over time and, according to the latest guidelines of the HDGO (Croatian Society for Gynaecology and Obstetrics), the following terminology is recommended: LSIL – low-grade squamous intraepithelial lesion, SIL – low-grade (Dysplasia levis CIN1) and HSIL – high-grade squamous intraepithelial lesion, SIL – high-grade (which includes Dysplasia media CIN 2 and dysplasia gravis CIN3 – according to the recommendations of the Croatian Society for Clinical Cytology in 2013). The cause of cervical cancer in 99,7% of cases is the human papillomavirus infection.

A modern approach to detecting and monitoring cervical lesions, in addition to high-quality cytology, includes molecular HPV testing and biomarker determination p16/Ki67 – such a multimodal approach, which assesses the risk of a high-grade lesion, has been recommended at the world and European level. The analysis is performed in order to triage mildly abnormal changes from high-risk ones, as well as for the purpose of monitoring the healing after local procedures due to pathological findings on the cervix. The presence of high-risk types of HPV speaks of increased risk and more frequent monitoring. Biomarkers p16/Ki67 are applied to cytological samples of the cervix for the purpose of a better prediction of a high-grade lesion and, if the result of these biomarkers is positive, colposcopic examination and biopsy are required (the method used to determine them is CINtec PLUS). New biomarkers that would definitively help in the diagnosis of cervical cancer are constantly being sought – such as markers of oxidative stress - thiol and disulfide, albumin modified by ischemia, glutathione, etc.

All this is necessary to prevent the development of a cervical cancer which still has an incidence of 5-10/100,000 women in the developed European countries, and in the Eastern European countries of 20 and more out of 100,000 women. It is the third most common malignant tumor among women in the world with 2,750,000 deaths per year. In the Republic

of Croatia it is in the eighth place of cancer incidence in women (in 2018 there was an incidence of 274 new cases (13/100000) which is 2% of the total number of cancer cases in women, and in the same year 125 women died (5,9/1000000). The National Cervical Cancer Prevention Program aims to reduce this incidence and minimize it, in the Republic of Croatia it was introduced in 2010, and in the last 10 years we have noted a trend of a decreasing incidence while mortality is stable.

When to start with cytological screening: according to the recommendations and medically based evidence, women under the age of 25 will have a Pap test as part of a gynaecological examination based on their sexual behaviour. The first examination among the adolescents should start at the age of 21 or 3 years after the first intercourse. Guidelines of the Croatian Society for Gynaecology and Obstetrics recommend screening every three years in the age group 25-49, and for women over 50 years of age every 5 years (the exceptions are risky sexual behaviour, usage of hormonal oral contraception, clinical symptoms). The combination of cytological screening and HPV test is useful for cervical cancer screening in women over 30 years of age (normal Pap test, positive HPV – control Pap and HPV in 12 months). If the HPV is also positive after 12 months, the woman should be referred to colposcopy. It is recommended that an organized cytological screening be carried out until the age of 65. The HPV testing shows that an HPV infection increases with the severity of a cytological lesion (particularly with an HPV-16 infection). An HPV infection decreases rapidly with age. After the treatment, continuous monitoring is recommended together with HPV testing or joint testing at three-year intervals for at least 25 years (new evidence shows that the risk remains increased for at least 25 years). It has an important role after the surgical treatment (presence related to incomplete healing), the most sensitive indicator of healing 3-6 months after the procedure. Colposcopy is a diagnostic method used in differential diagnosis of abnormal cytological findings. Combined with cytology, it increases the sensitivity to severe changes to 70-80%. By introducing immunocytochemical staining (using immunocytochemical markers p16 and Ki67), cases of severe dysplasia are detected in the cytological sample of an abnormal Pap which reduces colposcopic examinations by 50% and shows a better outcome assessment than the HPV test. Selective excisional biopsy (excision of the lesion) is recommended when a greater part of the surface of the ectocervix is changed and corresponds to rough colposcopic images and changes, when the colposcopic image is of a minor appearance and the cytology indicates a change in HSIL, and when the colposcopic image descends into the cervical canal and the endocervical component of the lesion has to be removed by a biopsy. Pregnancy is an exception to these rules.

Prevention of preinvasive changes is divided into primary prevention, which includes health education (later initiation into sexual relations, smaller number of sexual partners, etc.) and vaccination, and secondary prevention – organized cervical cancer screening of women (periodical invitation to an examination). Three vaccinations have been registered against an HPV infection: bivalent (Cervarix), quadrivalent (Siligars and Gardasil) and 9-valent (Gardasil9). Vaccination does not eliminate the risk but reduces it, and the recommendation on preventive examinations is equally valid for vaccinated and unvaccinated girls and women. Previous research indicates that the vaccine creates long-lasting protection, over 10 years, and it is not certain yet, whether there will be a need for an additional "booster" dose in the future.

Functional Magnetic Stimulation (FMS) in Urogynecology

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Tesla Care, Iskra Medical, Slovenia, is a device designed for functional magnetic stimulation (FMS) and is evaluated for its efficacy in treating pelvic disorders in women. This non-invasive technology aims to address issues such as pelvic pain, incontinence, and related conditions. By delivering targeted magnetic fields, Tesla Care stimulates pelvic floor muscles and nerves, potentially improving their strength and functionality. Clinical studies have explored its potential benefits, indicating positive outcomes in terms of symptom reduction and quality of life improvement. However, further research is required to establish its long-term effectiveness and safety as a treatment option for pelvic disorders in women.

Tesla Care is a novel device that utilizes functional magnetic stimulation as a potential treatment for pelvic disorders in women. This non-invasive approach aims to alleviate conditions like incontinence and pelvic pain by targeting the pelvic floor muscles and nerves.

The device operates by generating focused magnetic fields that penetrate the targeted pelvic area. These magnetic fields are believed to induce electrical activity in the pelvic floor muscles, leading to muscle contractions and potential nerve activation. By stimulating these key structures, Tesla Care seeks to enhance muscle tone, strength, and coordination in the pelvic region.

Clinical studies have shown promising results in evaluating the device's effectiveness. Patients using Tesla Care have reported reduced pelvic pain, improved urinary and bowel control, and enhanced quality of life. These positive outcomes suggest that functional magnetic stimulation could be a viable option for managing pelvic disorders in women.

However, while initial findings are encouraging, further research is essential to establish the device's long-term efficacy and safety. Larger, controlled trials are needed to confirm these preliminary results and to determine the optimal treatment parameters for different pelvic conditions. As the field of functional magnetic stimulation continues to evolve, Tesla Care holds a high potential to provide a non-surgical and non-pharmacological solution for women with various pelvic disorders.

Er:YAG Vaginal Laser in Urogynecology

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The efficacy of FotonaSmooth XS Er:YAG vaginal laser, Fotona, Slovenia, in treating pelvic disorders in women is notable. This minimally invasive procedure utilizes controlled laser energy to target the vaginal tissue, promoting collagen production and strengthening the pelvic floor. Clinical studies have shown promising results, including improved vaginal laxity, reduced stress urinary incontinence, and enhanced sexual satisfaction. The non-ablative nature of the laser ensures minimal discomfort and quick recovery. However, while initial findings are encouraging, more extensive research is necessary to establish its long-term effectiveness and safety profile. Overall, FotonaSmooth XS vaginal laser holds potential as a viable option for addressing pelvic disorders in women, but further investigation is required to validate its lasting benefits.

The FotonaSmooth XS vaginal laser has emerged as a promising solution for treating pelvic disorders in women. By delivering controlled laser energy to the vaginal tissue, it stimulates collagen production and strengthens the pelvic floor muscles, offering potential relief for various conditions. Studies have indicated positive outcomes, including enhanced vaginal tightness, diminished stress urinary incontinence, and improved sexual gratification. This procedure stands out for its minimally invasive approach, ensuring reduced discomfort and quicker recovery compared to traditional surgical interventions. The non-ablative nature of the laser means that it promotes tissue regeneration without causing damage, adding to its appeal. Patients often appreciate the convenience of shorter treatment sessions and the absence of downtime.

However, while initial results are encouraging, further research is imperative to establish the treatment's long-term efficacy and safety. Additional studies with larger sample sizes and longer follow-up periods are required to validate the sustainability of the observed benefits. It is essential to consider individual patient characteristics, medical history, and specific pelvic concerns when recommending this treatment.

In conclusion, the FotonaSmooth XS vaginal laser presents a potentially valuable avenue for addressing pelvic disorders in women. Its non-invasive approach, minimal discomfort, and positive initial results make it an appealing option. Nevertheless, the need for more comprehensive research underscores the importance of continued investigation to solidify its role as an effective and safe treatment for pelvic health issues.

Borderline ovarian tumors

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Tumors of borderline malignant potential (borderline tumors) of the ovary make up 15% of ovarian epithelial tumors. 80% of such tumors are diagnosed in clinical stage I, and in 30-40% of cases they are bilateral, with peak incidence between 42-47 years of age. Most often, they have an indolent course, and relapses are rare and most often appear years after the initial diagnosis. Histologically, these tumors show cell atypia, mitotic activity, papillary intussusception and the ability to metastasize, however, stroma invasion is lacking, which differentiates them from invasive carcinoma. Most often, borderline tumors are asymptomatic formations that are diagnosed during an ultrasound examination, less often they are manifested by pain, pressure in the pelvis, dyspareunia. Treatment is surgical, usually with a minimally invasive approach, with adequate staging and preservation of the uterus and contralateral adnexa in younger women, while in the case of completed reproduction, a hysterectomy is also recommended. Five-year survival is excellent compared to ovarian cancer, 95-99% for stage I-III disease and reaches 77% for stage IV.

HPV distribution among Croatian women in the post-vaccination period

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Cervical cancer is still among the most common cancer types in women worldwide. Although number of cases decreased in the last decade, in Croatia the incidence is still relatively high with approximately 300 cases annually. Persistent HPV infection with high-risk HPV types is the prerequisite for cancer onset. To prevent the infection and thus indirectly reduce cancer incidence, several vaccines became available in the last decade. In Croatia, vaccination became available in 2007 while national campaigns started in 2015. Finally, large scale awareness programs on the EU level started recently with WHO global strategy in 2018 which set the target for 90% coverage of girls by 2030.

From June 2020 to June 2023, 287 women from two hospitals, the St. Catherine Hospital and Zabok General Hospital, were included. While the first cervical swab was sent for cytological examination, the second swab was collected with a brush and stored in the liquid-based cytology medium and intended for HPV genotyping with PCR. Along with the samples, relevant epidemiological data were collected as well. Nucleic acid was isolated and HPV detection was performed using consensus and type-specific PCR followed by statistical analysis.

The age range of the women involved in the study was 18-70 years with an average of 36 years. Out of 287 samples, 150 from St. Catherine Hospital and 137 from Zabok General Hospital, 34.5% of women had cytological abnormalities and nearly 40% of them were HPV-positive. Fifteen years after introduction of HPV-vaccination in Croatia, HPV is still present and can still consider as a threat to women's health.

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Physiology of vitamin D – can the daily requirements be met through diet

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Vitamin D belongs to the fat-soluble vitamins. It is the generic term for ergocalciferol (vitamin D2) and cholecalciferol (vitamin D3), which are formed from their respective provitamins ergosterol and 7-dehydrocholesterol (7-DHC). Vitamin D2 is derived from plants and fortified foods whereas D3 comes from animal-sourced foods and is synthesized in the skin of vertebrates during the sunshine exposure. Both are effectively absorbed into the bloodstream. However, the liver metabolizes them differently. Vitamin D2 into 25-hydroxyvitamin D2 and vitamin D3 into 25-hydroxyvitamin D3. These two compounds are collectively known as calcidiol. However, vitamin D2 has shown significantly lower potency in human organism and it will yield much less calcidiol than an equal amount of vitamin D3.

Vitamin D3 plays very important role in numerous physiological functions such as maintenance of normal calcium and phosphate levels, required for the normal bone mineralisation, muscle contraction, nerve conduction, and general cellular function. Vitamin D also possesses immuno-modulatory properties that may alter responses to infections etc.

Under conditions of regular sun exposure, particularly during the summer months, dietary vitamin D intake is of minor importance. However, insufficient time spent outdoors significantly influences the production of vitamin D3 by the skin. In such occasion when endogenous synthesis of vitamin D is not sufficient a dietary intake is essential. However, vitamin D3 is found naturally only in a few foods, such as fish-liver oils, fatty fish, mushrooms, egg yolks, and liver. Therefore, regular meals can provide just a small portion of defined daily dose of vitamin D and without endogenous vitamin D from the skin the hypovitaminosis of vitamin D is unavoidable.

The role of vitamin D in gynecology and obstetrics

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It is well documented that vitamin D is important for homeostasis and proper activity of numerous physiological functions in organism, so it is to be expected that there are also accumulating data suggesting that vitamin D may also be important for fertility, pregnancy outcomes and lactation. Significant changes in vitamin D metabolism during pregnancy such as increased production of the "active vitamin D hormone" calcitriol support the important role of vitamin D in this setting.

Observational studies show that vitamin D deficiency is a risk marker for reduced fertility and various adverse pregnancy outcomes and is associated with a low vitamin D content of breast milk. Meta-analyses of randomized controlled trials (RCTs) document that physiological vitamin D supplementation during pregnancy is safe and improves vitamin D and calcium status, thereby protecting skeletal health. Although certain RCTs and/or meta-analyses reported some other beneficial effects, it is still not clear whether vitamin D supplementation improves fertility or decreases the risk of adverse pregnancy outcomes such as low birth weight, pre-eclampsia and neonatal mortality, or reduces wheeze/asthma in the infants.

An overview of systematic reviews, meta-analyses and large trials reporting clinical data on the role of vitamin D for fertility, pregnancy and lactation reveal that current evidence from clinical studies indicates that vitamin D deficiency is very common in pregnant and lactating women and is associated with a variety of adverse outcomes. By contrast, data from RCTs about vitamin D supplementation have yielded inconsistent results. There may be some beneficial effects of vitamin D supplementation on clinical pregnancy outcomes, but it is premature to draw final conclusions and there are only insufficient RCT data on the potential effects of vitamin D in the first weeks of pregnancy.

TITLE
DNM in Clinical Practice - Hands on workshop

AUTHORS
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INTRODUCTION AND AIM
We will review the evolution of noninvasive method of electrotherapy primarily used in treatment of acute and chronic pain conditions and explain MOA of the hand held device, FirstTx, used to effectively treat acute and chronic pain conditions, emphasizing the difference between bidirectional and unidirectional microcurrent treatment. We will provide hands-on treatments.

MATERIALS AND METHODS

- FirstTx instrument creates computer mediated neurostimulation via skin through a variety of frequency and duration settings
- electrical impulse acts on the skin, muscles and vessels - local effect
- C fibers send the message to the brain to the insula, responsible for perception of pain and maintenance of homeostasis of the organism via frontal operculum
- tissue reacts via bio feedback mechanism which resembles a natural repair mechanism after any type of trauma
- there is a local and systemic release of neuropeptides and neuromediators which result in activation of dialogue between the treated site and the brain and ultimately leads to regeneration and repair of tissue
- the instrument is small (palm size), has a transdermal electrostimulator and displays activity and intensity via a series of lights and an audio indicator

CONCLUSIONS
DNM is emerging as a viable modality in treatment of many painful conditions in both women and men. Non gender specific types of pain management include treatment of acute and chronic musculoskeletal pain (such as intractable chronic low back pain refractory to other modalities), sports injuries, osteoarthritis, rheumatoid arthritis, tendonitis and synovitis. Examples of conditions specific to women or more prevalent in women that respond well to DNM include dysmenorrhea, endometriosis, menstrual and other migraines and fibromyalgia.

This innovative technique offers the potential for improved symptom control, enhanced quality of life, and reduced reliance on medications or more invasive surgical procedures. The ease of self administration makes this technology suitable for ongoing use by patients at home. As research and technology continue to advance, dynamic neuromodulation may become increasingly integrated into clinical practices of not only physical medicine providers but also primary care and OB/GYN practitioners.

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TITLE (Hands on Workshop)
Glychocheck Diagnostics Belong in Every Clinic
Advancing Health through Early Noninvasive Diagnosis of Endothelial Glycocalyx Abnormalities with the Glycocheck Device

AUTHORS
Hans Vink and Vesna Skul

AFFILIATION
Hans Vink, PhD: GlycoCheck BV, The Netherlands – Managing Director, co-founder and Chief Science Director
MicroVascular Health Solutions LLC, Alpine, UT – Co-founder and Chief Science Director
BioRegenx Inc, Chattanooga, TN – Co-founder and member of the board of directors.

Vesna Skul, MD,FACP: Comprehensive Center for Women's Medicine - Founder and Medical Director
Rush Medical College, Chicago IL. - Associate Professor of Medicine

INTRODUCTION AND AIM
The endothelial glycocalyx, a fragile and vital structure lining the inner surface of blood vessels, plays a pivotal role in vascular health.
It is a complex mesh of glycoproteins, glycolipids, and proteoglycans that lines blood vessel walls. It acts as a protective barrier, regulating vascular permeability, maintaining blood flow, and preventing the adhesion of harmful particles to the vessel wall. Damage or dysfunction of the glycocalyx can lead to vascular inflammation, oxidative stress, and endothelial dysfunction, which are key contributors to conditions such as:
Diabetes
Hypertension
Pre-eclampsia
Heart disease
Kidney disease
Stroke
Dementia
Septic shock
Inflammatory disorders
Compromised Immunity
Tropical infectious diseases
Cancer metastasis
COVID-19

MATERIALS AND METHODS
GlycoCheck™ is a pioneering all-in-one video microscope and software solution for research departments in universities and hospitals. It is a unique asset in your research department for automated video analysis of the microvascular system. This new device provides imaging solutions based on a patented measurement system of the endothelial glycocalyx layer. GlycoCheck facilitates the reliable, non-invasive selection and monitoring of patients with many conditions and diseases as outlined above.
As the endothelial glycocalyx layer plays a crucial role in microvascular health and various clinical stages of the conditions and diseases listed above, ability to measure the health of the endothelial glycocalyx becomes an invaluable tool to monitor changes in the microvascular

system and the impact of current treatment protocols.
GlycoCheck is an all-in-one digital video microscope camera, dedicated computer system, and patented glycocalyx measurement software system that calculates a MicroVascular Health Score™. It will soon be available on a large scale for use in outpatient settings for diagnostic and treatment follow up purposes.

RESULTS
Glycocheck is being used by researchers in hospitals and universities in Africa, Asia, Australia, China, Europe, Japan, Russia and the United States.
Examples of studies include research in DM, stroke, kidney disease, epilepsy, syndrome X, early cognitive impairment, pre-eclampsia/HELLP, septic shock, atherosclerosis, heart failure, obesity, inflammation, infectious diseases (including COVID-19).

CONCLUSIONS
Early diagnosis of endothelial glycocalyx abnormalities using the Glycocheck device opens the door to targeted interventions and personalized treatment plans. For example, individuals at risk of cardiovascular disease can receive timely interventions to restore glycocalyx integrity and reduce the progression of atherosclerosis. Similarly, patients with diabetes can benefit from early glycocalyx assessments to manage vascular complications effectively. Furthermore, the Glycocheck device offers an invaluable tool for monitoring the effectiveness of therapeutic interventions. By providing quantitative data on glycocalyx health, it allows healthcare providers to track the progress of treatments and make informed decisions regarding adjustments to patient care plans.

Our workshop will demonstrate real time assessments of microvascular scores in volunteers and address questions relevant to use of the instrument in everyday clinical practice.

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OSTEOPATHIC RELEASE OF CAESAREAN SCARS

Nikolina Sokalić bacc. phisyoth. TO.

Osteopathy is a type of manual therapy, a natural medical method that seeks a path to health, without the use of drugs. Osteopathy is a special and complete health care system. It is created on precisely defined principles and certain principles. It is manual medicine that seeks health in the body, and if it encounters blockages in the body, it looks for the reasons for that blockage. Procedures which are diagnosed and treated promote the healthy functioning of the human being as a whole, correcting mechanical imbalance within and between body structures to encourage better autoregulation. The body is brought into functional balance, releasing tensions or blockages in tissues. Osteopathy is complementary to allopathic medicine considering that it does not treat u the same stage of the disease.

Through fine palpation, through a "dialogue with the tissue", the osteopath detects changes in tissue quality, neurological, muscular or visceral. Osteopathy is often said to be science, philosophy and art. Why is it important to treat a scar¬ on the uterus, because it can have an impact on the organs of the small pelvis, which can cause dysfunction in the sacrum and iliac via fascial and ligamentous connections. Organ prolapse, which can occur after a caesarean section, can affect the mechanics of the pelvis. Scar adhesions, depending on the location, can affect the muscles that come out of the pelvis and their fascia, as well as the mechanics of the lumbar spine and further abdominal organs. The pelvic floor, which can be in tension due to adhesions, can lead to damage to the static function of the thoracolumbar diaphragm. A scar can lead to tensions in the structure we call the central fascial chain of the body: the fascia from the pelvis and abdomen to the diaphragm, pericardium, mediastinum, pleura, deep cervical apnea, cervical spine, skull.

We use several techniques to loosen the scar after cesarean section, in the workshop we emphasize: SCAR RELEASE – DIRECT TECHNIQUE

SCAR RELEASE – WITH ADDITIONAL USE OF LEVER

TITLE
Endothelial Glycocalyx - A researcher's journey from discovery to noninvasive diagnosis and clinical breakthroughs

AUTHOR
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MicroVascular Health Solutions LLC, Alpine, UT – Co-founder and Chief Science Director
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Kidney disease
Stroke
Dementia
Septic shock
Inflammatory disorders
Compromised Immunity
Tropical infectious diseases
Cancer metastasis
COVID-19

MATERIALS AND METHODS
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Examples of studies include research in DM, stroke, kidney disease, epilepsy, syndrome X, early cognitive impairment, pre-eclampsia/HELLP, septic shock, atherosclerosis, heart failure, obesity, inflammation, infectious diseases (including COVID-19).

CONCLUSIONS
Early diagnosis of endothelial glycocalyx abnormalities using the Glycocheck device opens the door to targeted interventions and personalized treatment plans. For example, individuals at risk of cardiovascular disease can receive timely interventions to restore glycocalyx integrity and reduce the progression of atherosclerosis. Similarly, patients with diabetes can benefit from early glycocalyx assessments to manage vascular complications effectively. Furthermore, the Glycocheck device offers an invaluable tool for monitoring the effectiveness of therapeutic interventions. By providing quantitative data on glycocalyx health, it allows healthcare providers to track the progress of treatments and make informed decisions regarding adjustments to patient care plans.

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TITLE
Inflammaging

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INTRODUCTION AND AIM
Inflammaging, a term coined to describe the intricate interplay between chronic inflammation and the aging process, has become a focal point in the field of gerontology and age-related disease research. This lecture delves into the multifaceted phenomenon of inflammaging, its underlying mechanisms, and its profound implications for health and longevity.

As individuals age, their immune systems undergo changes, which can result in a state of chronic, low-grade inflammation. Inflammaging is characterized by elevated levels of proinflammatory cytokines, such as interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-α), circulating in the bloodstream. This sustained inflammation is now recognized as a key driver of age-related diseases, including cardiovascular diseases, neurodegenerative disorders, metabolic syndromes, and even cancer.

Inflammaging has a profound impact on the cellular level, accelerating the aging process itself. It leads to telomere shortening, mitochondrial dysfunction, and cellular senescence, all of which contribute to tissue degeneration and impair organ function.

Understanding the mechanisms behind inflammaging has paved the way for potential interventions to mitigate its effects. Lifestyle modifications, including a balanced diet rich in anti-inflammatory foods, regular physical activity, and stress management, have demonstrated the potential to reduce chronic inflammation associated with aging.

Pharmacological approaches targeting specific inflammatory pathways are also being explored as potential therapies to combat inflammaging. We will briefly discuss pre-publication information on MOA of a new patent-pending nutraceutical which is viral strain independent and successfully targets all mRNA viruses. This discovery has huge implications relevant to current global infectious disease challenges, involving cytokine storms that they cause and subsequent health consequences.

CONCLUSIONS
Inflammaging represents a critical aspect of aging, influencing both the development of age-related diseases and the biological processes that underpin aging itself. Recognizing the intricate relationship between chronic inflammation and aging has significant implications for the development of strategies to promote healthier aging and extend healthspan. As research into inflammaging continues to evolve, there is growing optimism that interventions targeting

this phenomenon may offer new avenues for improving the health and well-being of older individuals.

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TITLE
History of Dynamic Neuromodulation and its Clinical Applications

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INTRODUCTION AND AIM

MATERIALS AND METHODS

- FirstTx device
- Current model for understanding the effects of stimulation of this sinusoidal waveform is:

1. The brief spikes of dynamic high intensity electrical stimulation activates the unmyelinated C-fibers in a much higher degree than other forms of electrotherapy. Stimulation of these C fibers has been shown to activate the right and left anterior insular cortex (believed to be responsible for the perception of pain) and the frontal operculum of the brain.
2. Electrical impulse acts locally as a minor irritant, stimulating the release of endogenous opioid peptides (enkephalins, endorphins and sensory neuropeptides, Substance P and Calcitonin Gene-Related Peptide CGRP) resulting in pain relief, reduced inflammation and vasodilation.
3. Effects through the fascia (Dr. R. Becker The Body Electric), known as the second nervous system of the body which plays a role in the body's self awareness and corrective tendency during and after stimulation with the waveform unique to the instrument

CONCLUSIONS
DNM is emerging as a viable modality in treatment of many painful conditions in women. This innovative technique offers the potential for improved symptom control, enhanced quality of life, and reduced reliance on medications or more invasive surgical procedures.

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TITLE

DYNAMIC NEUROMODULATION IN TREATMENT OF URINARY INCONTINENCE - FOLLOW UP RESULTS OF THE MULTICENTER PILOT STUDY

Clinical Applications in Management of Urinary incontinence

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INTRODUCTION AND AIM

Urinary incontinence and chronic pain are common and often debilitating conditions that significantly impact an individual's quality of life. Traditional treatment approaches have limitations, prompting the exploration of innovative therapies. Dynamic neuromodulation techniques have emerged as promising strategies for managing urinary incontinence and chronic pain.

DNM has been used for several decades but its clinical applications in women's health are just now emerging. Our aim is to review the proposed mechanism of action of this noninvasive method, utilizing bi-directional micro current and report its effectiveness in treatment of postmenopausal urinary incontinence, regardless of type.

MATERIALS AND METHODS

FirstTx device

Menopausal patients ranging in age from 48 to 78 with UI regardless of type

Three different protocols used for 12 sessions over 4 weeks

RESULTS

All of the pilot patients experienced improvement ranging from 50-93% reduction in symptoms utilizing ICIQ-UI short form with retention of >50% benefit for more than 36 months in a cohort that continued periodic use of FirstTx, with a secondary end point of overall reduction of pain in those participants who had co-existent painful conditions.

CONCLUSIONS

DNM is emerging as a viable modality in treatment of many painful conditions in women. This innovative technique offers the potential for improved symptom control, enhanced quality of life, and reduced reliance on medications or more invasive surgical procedures. Preliminary data from our pilot study, which is ongoing, point to its usefulness in treatment of postmenopausal UI, regardless of type. As research and technology continue to advance, dynamic neuromodulation may become increasingly integrated into clinical practice, providing new hope and opportunities for individuals suffering from these challenging conditions.

We propose that this methodology be further studied on a larger scale.

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Women's Sports Injuries

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Introduction

Differences in anatomy and biomechanics may predispose females to risk factors that increase their chance of injury compared to males. This lecture will present musculoskeletal injuries that are commonly seen in females include ACL tears, patellofemoral pain, tendinopathy, and stress fractures.

Anterior cruciate ligament (ACL) tears are one of the most common traumatic injuries in sports. Female athletes' injury rates for ACL tears are two to eight times greater compared to males especially in sports that require rapid or repetitive lateral movements. There is a plethora of studies published on the high prevalence of non-contact ACL rupture in the female athlete. The increased frequency of female ACL injury is likely multifactorial and extensively studied.

Patellofemoral pain is one of the most common sports-related knee conditions. Females are twice as likely to develop patellofemoral pain as males. Patellofemoral pain is particularly prevalent in younger, active populations. Limb alignment, patella height, muscle strength, neuromuscular recruitment, overuse, and training errors have all been implemented in the patellofemoral pain. The pathogenesis is complex and multifaceted.

Overuse injuries are common in females from tendinopathy to stress fractures. Overuse injuries result from repetitive minor insults that the body does not have adequate time to heal. These injuries typically occur in activities that require long training or repetitive loading such as walking, running, swimming, or tennis. Overuse injuries typically present with a gradual onset of pain often delaying presentation and

diagnosis.

Conclusion

Understanding the common injuries that occur in females and their clinical presentation will allow for more timely diagnosis and management. Further research specific to female musculoskeletal injuries will drive better understanding of injury patterns, management, and injury prevention.

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TITLE
Is Our Gut on Fire?
How calming the gut establishes healthy nervous and immune systems

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INTRODUCTION AND AIM
The intricate connection between gut health and overall well-being has gained significant attention in recent years, with mounting evidence highlighting the pivotal role of a healthy gut microbiome in improving brain and immune function.

RESULTS
The gut microbiome, comprising trillions of microorganisms, plays a crucial role in digestion, nutrient absorption, and immune system regulation. Dysbiosis, an imbalance in this microbial community, can lead to a cascade of health issues, including gastrointestinal problems, cognitive impairment, and weakened immunity.

One significant avenue through which the gut affects the brain is the gut-brain axis, a bidirectional communication system involving the nervous, endocrine, and immune systems. A balanced gut microbiome contributes to a diverse and flourishing ecosystem of beneficial bacteria, which produce neurotransmitters and metabolites that influence mood, cognition, and behavior. This connection has led to the concept of "psychobiotics," or probiotics that positively impact mental health.
Furthermore, the gut has a profound impact on the immune system. A robust microbiome regulates immune responses, preventing inflammation and autoimmune disorders. A compromised gut barrier, on the other hand, can lead to increased susceptibility to infections and chronic inflammation, which are detrimental to overall health.
Several approaches have emerged to heal the gut and harness its potential for enhancing brain and immune function. These include dietary interventions, such as consuming prebiotic, probiotic and postbiotic-rich foods, as well as personalized nutrition plans. Additionally, lifestyle factors like stress reduction, regular exercise, and adequate sleep have been shown to positively influence gut health.

CONCLUSIONS
Understanding the intricate relationship between the gut microbiome, brain, and immune system provides opportunities for innovative interventions that may ultimately improve the quality of life and health outcomes for individuals across the lifespan. Further research in this field promises to unlock new therapies and preventive strategies for a range of neurological and immunological disorders.

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TITLE

Food as Medicine for a Longer and Healthier Life

Nutritional Support for Midlife and Beyond

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INTRODUCTION AND AIM

The concept of "food as medicine" has gained prominence as scientific research increasingly uncovers the profound impact of dietary choices on overall health and longevity. This lecture explores the pivotal role of nutrition in extending life and promoting well-being, highlighting the mechanisms through which food can act as a potent tool for health optimization.

The adage "you are what you eat" holds a profound truth as our dietary choices profoundly affect our health. Research suggests that a balanced and nutrient-rich diet not only provides essential sustenance but also acts as a preventive and therapeutic agent for a wide range of chronic diseases. A diet rich in whole foods, including fruits, vegetables, whole grains, lean proteins, and healthy fats, has been linked to reduced risks of heart disease, diabetes, cancer, and neurodegenerative disorders.

One key mechanism by which food influences longevity is through its ability to modulate inflammation. Chronic inflammation is a common denominator in various age-related diseases. Nutrient-dense foods, such as those abundant in antioxidants and omega-3 fatty acids, can help mitigate inflammation, thus extending health span and lifespan.

Avoidance of genetically modified foods and toxic additives is important and as global food supply is increasingly becoming contaminated with toxic herbicides, pesticides and preservatives. It is for that reason that targeted detoxification needs to be incorporated into healthy lifestyles.

Furthermore, the gut microbiome, often referred to as the "second brain," plays a pivotal role in health. A diet high in fiber and probiotics can promote a diverse and balanced gut microbiota, which in turn influences various physiological processes, including metabolism and immune function. Emerging research suggests that a healthy gut microbiome is linked to longevity and reduced susceptibility to age-related diseases.

Personalized nutrition is another exciting frontier in the quest for a longer and healthier life. Advancements in genetic testing and nutritional science allow individuals to tailor their diets to their unique genetic profiles, optimizing nutrient intake for improved health outcomes.

CONCLUSIONS

The concept of food as medicine holds significant promise in promoting longevity and overall well-being. A well-balanced and nutrient-dense diet, combined with an understanding of the intricate relationship between nutrition and health, can serve as a powerful tool for disease prevention and health optimization throughout the lifespan. As the science of nutrition continues to evolve, the potential for using food as medicine to extend and improve lives becomes increasingly apparent, offering hope for a healthier and more vibrant future for individuals worldwide.

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Nutrition and influence on women's health

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There are important physiologic, neurologic, and hormonal distinctions throughout the lifecycles of women that impact nutritional needs. As we know woman's body goes through several stages dependent on hormonal changes.

Often overlooked life stage in women's nutrition is adolescence. During adolescence, numerous biological and psychosocial changes prompt the transition from childhood to adult life. It is a period of significant hormonal changes and a period of rapid growth, and consequently, the energy and nutrient requirements increase.

A woman's nutritional status during pregnancy and breastfeeding is of course critical for both mother and child. Healthy diet in pregnancy should guarantee proper fetal growth and development, maintain maternal health and enable lactation. Nutritional requirements during pregnancy differ considerably from those of non-pregnant women, so nutritional counseling and interventions need to be an integral part of antenatal care. If nutrient restriction exceeds the limits of adaptive responses, current investigations indicate that fetus will develop the alternative metabolic competence that might emerge as a disease (type 2 diabetes, hypertension, coronary heart disease and stroke) in adult life. Currently, some countries recommend routine supplementation for all pregnant women, while others recommend supplements only when necessary.

Among the various aspects of health promotion and lifestyle adaptation to the postmenopausal period, nutritional habits are significantly important because they concern all women, can be modified, and impact both longevity and quality of life. Current evidence suggests that low-fat, plant-based diets are associated with beneficial effects on body composition. The Mediterranean diet pattern along with other healthy habits may help the primary prevention of bone, metabolic, and cardiovascular diseases in the postmenopausal period.

The aim of this lecture is to evaluate the knowledge in the scientific literature on the current nutritional recommendations for the different stages of women′s life. Finally, we conclude by discussing different approaches of the nutrition and the potential benefits of supplementation.

Application of Glubran Tiss 2 in the treatment of pelvic wounds

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Abstract: In the care of skin wounds in emergency room departments and surgical rooms, aesthetics, faster mobility of the patient, less need for wound care and faster wound healing, are more and more emphasized as one of the priorities. That's why we started using surgical glue in our emergency department, which has a number of advantages. Surgical glue has a quick and precise application, is painless for patients (if it polymerizes at lower temperatures), the patient's recovery is faster, the wound itself does not require follow-up examinations, scars are either completely absent or significantly reduced, the wound does not require special care or dressing, glue breaks down on its own approximately 7 days after application, the application itself does not require additional equipment, and as such the use of glue is ultimately more economical, and the overall experience of the patient is significantly more positive, especially in the pediatric population.

Based on positive experiences from the emergency room department, we decided to extend the use of glue to gynecological operating rooms, primarily for the final care of surgical wounds in the pelvic region of women. We used the glue on several patients as a final closure of the skin layer after laparoscopic procedures and caesarean sections. The use of surgical glue Glubran Tiss 2 primarily accelerated the process of closing the skin, because the glue itself is simply and quickly applied to the wound, after which rapid polymerization occurs in contact with the tissue, an antimicrobial barrier is created, which reduces the possibility of infection, and the glue is completely biocompatible . After a maximum of one minute, the wound was completely closed. The glue is waterproof, which enabled the patients to perform independent hygiene. The wound did not need to be dressed, nor did it require the supervision of a doctor or the removal of stitches, which is an additional trauma for the patient. The patients were more satisfied, and the incisions themselves left no or minimal scars. Considering the above, the use of glue proved to be an excellent method of treating surgical

skin wounds, it accelerated the completion of the surgical procedure, reduced the need for postoperative wound control, contributed to the aesthetics of the skin of the pelvic region, and contributed to the satisfaction of patients.

Key words: surgical glue, wound of the pelvic region, aesthetics, scars

How to treat irritable bowel syndrome in the pregnant population

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Irritable bowel syndrome (IBS) is a common functional disorder of the lower gastrointestinal tract characterized by chronic abdominal pain and altered bowel habits in the absence of an organic disease. Up to 15% of worldwide adults have symptoms consistent with IBS and they make up a significant proportion of patients who seek a gastroenterologist's examination in daily clinical practice. Research conducted on the population in the continental part of Croatia, which is up to 29.16%, supports the high prevalence of irritable bowel syndrome in Croatia.

IBS is defined, according to Rome IV criteria, as recurrent abdominal pain on average, at least one day per week in the last three months with two or more of the following: related to defecation, associated with a change in frequency of stool, or associated with a change in form (appearance) of stool. There are 4 subtypes of IBS: predominant constipation, predominant diarrhea, mixed bowel habits and IBS unclassified.

Studies have revealed that IBS is more common in women than men. A large proportion of women suffering from IBS are women of reproductive age; however, there is a lack of studies and guidelines specifically addressing the epidemiology, course, prognosis, or treatment of IBS in pregnancy and it presents significant challenges for healthcare providers in counseling and treating patients.

Dietary modifications (e.g., increased fiber intake, reduced fat and dairy consumption) are considered first-line therapy in the treatment of IBS. Restrictive diets may be associated with a lower caloric intake which increases the risk of fetal low birth weight and potentially developmental delays later in life. If medication use is necessary to treat constipation, some laxatives are considered low-risk options. For diarrhea, most of used medications are not recommended because of their possible fetal toxicity risk. There are no low-risk options for treating abdominal pain.

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Possibilities of systemic and radiotherapy treatment of advanced cancers of the female reproductive system

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Gynaecological tumors are represented with different incidence in highly developed and underdeveloped countries of the world. Cervical cancer ranks first in the frequency of gynaecological tumors, although its incidence in highly developed countries is falling, the second most common cancer of the female reproductive system is ovarian cancer, while endometrial cancer is in third place.

Treatment options, as well as overall survival, differ depending on the stage at which the disease is detected, regardless of its location in the reproductive system. The best prognosis is for patients whose disease is detected in the early stages, when operative treatment forms the backbone of treatment, with the possibility of applying adjuvant chemotherapy and radiotherapy.

Patients with metastatic disease have a lower overall survival compared to those in the early stages of the disease, and the backbone of their treatment is chemotherapy.

The treatment of patients with third and fourth stage ovarian cancer today involves the use of neoadjuvant chemotherapy based on platinum, taxanes and VEGF inhibitors with the aim of achieving optimal cytoreduction of the disease, and then maintenance therapy with VEGF inhibitors or PARP inhibitors in patients with evidence of a BRCA mutation. Today, we have the results of numerous studies that suggest the need to determine the microsatellite stability of ovarian tumors, because patients with proven microsatellite instability benefit significantly from the addition of immunotherapy.

In patients with metastatic cancer of the cervix, as well as metastatic cancer of the endometrium, treatment in most cases involves the use of chemotherapy with a VEGF inhibitor, where the combination of cisplatin with paclitaxel, gemcitabine or vinorelbine and bevacizumab is most often used. These combinations have significantly improved overall survival and progression free survival based on the results of phase III studies.

The role of radiotherapy in metastatic disease depends on the extent of the metastatic disease itself. In the case of oligometastatic disease, targeted methods of radiotherapy as well as radiosurgical interventions for individual metastases are also considered.

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The role of the nurse in the treatment of psychiatric disorders related to pelvic health in women

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Women with psychiatric disorders have a higher risk of various diseases and disorders of the pelvis and pelvic organs, and many such diseases, such as pelvic organ prolapse, urinary or fecal incontinence, chronic pain, sexual dysfunctions, endometriosis or pelvic floor dysfunction, are associated with an increased risk of anxiety, depression, emotional distress, other psychiatric disorders and with a weakening of the quality of life. Due to the distinct specialization of doctors dealing with pelvic health, such as gynecologists or perviperineologists on the one hand, and mental disorders such as psychiatrists on the other hand, there is an increased risk that psychiatric symptoms will remain unrecognized in, for example, gynecological or perviperineological clinics, as well as pelvic health disorders in patients treated in psychiatric institutions. Due to the specificity of education and more frequent interactions with patients, nurses can ensure the improvement of detection of new problems through more regular monitoring, the continuity of therapy and care, and the reduction of the communication gap between patients and highly specialized doctors, that is, they can contribute to integrative care by participating in multidisciplinary teams. In cases of comorbidity, especially comorbidity of serious physical diseases and mental disorders, education of patients and their families, psychological, emotional support or empathic care and guidance through the treatment process are of particular importance, and the role of nurses is particularly important in this. Nurses have a special role in motivating patients to persist in treatment and to cooperate with the recommended therapy. Finally, specially trained nurses can play an important role in behavioral interventions and psychotherapy.

Physical medicine and its impact on pelvic health - new insights

High Frequency Electrotherapy Today

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The thermal effect of high-frequency alternating current on the body has been known since the 19th century.

In 1890, D'Arsonval passed a high-frequency current of 10 MHz with a strength of 1 A through his own body and the body of his assistant - the result was described as a sensation of heat, i.e. heating. The same amount of low-frequency electricity is lethal to humans. Tesla and Hertz also experimented with high-frequency currents. The use of high-frequency currents - short waves (0.5-3,000 MHz) with the aim of achieving a thermal effect in the tissues in the zone of action has been used in clinical practice, first in Germany since 1920.

Until the 80s of the last century, short-wave therapy of 27.12 MHz and a wavelength of 11.062 m was the most commonly used and best researched, and then the research of radiofrequency electromagnetic currents in therapy of much lower frequencies, formerly called TEC or TECAR (Terapeutic Alectric CApacitive Resistive) began) - TECARTHERAPY, today the scientific community calls it CRET (capacitive resistive electric transfer) or CRMRF (capacitive resistive monopolar radio frequency).

The high-frequency therapy device converts electrical current into a fixed, stable frequency, which, passing through tissues, increases ion exchange at the cellular level, which promotes tissue repair and helps control pain. The return plate closes the electrical circuit, allowing energy to be delivered in a safe and efficient manner for patients and clinicians. The integration of two modes of operation, CAP and RES, as well as low and high output power, makes it easy to achieve subthermal and thermal effects. Newer devices that use frequencies

such as 448 kHz fixed, in order to stimulate cellular biostimulation, increase cellular metabolism and increase microcirculation for the purpose of treatment.

CELL BIOSTIMULATION - high-frequency energy adjusts the permeability of the cell membrane and, when used for non-thermal application, also increases intra- and extra-cellular ion exchange, which in turn leads to the regeneration of cells and tissues. Biostimulation in acute injuries without thermal effect, accelerates tissue healing, reduces pain and reduces swelling. The body's natural recovery process is faster and importantly there is still an increase in blood flow that supplies oxygen and nutrients for the recovery process. (Kumuran and Watson 2018)

VASCULARIZATION – the thermal effect of increasing microcirculation is complemented by bio-stimulation and supplies the tissue with elements necessary for regeneration. Capillary vasodilatation nourishes and brings oxygen to tissues, improves venous and lymphatic resorption.

HYPER-ACTIVATION - hyperthermia greatly increases cellular metabolism and begins the process of remodeling and preventing the formation of fibrosis, i.e. the creation of excess connective tissue in reactive or reparative processes that leaves scars and prolongs the course of wound healing. Tissue is remodeled even in chronic cases where fibrosis has been present for some time, such as the long-term effects of previous trauma or arthritis.

The application of high-frequency currents with a thermal effect is nowadays supplemented with the simultaneous application of kinesitherapy by performing rehabilitation exercises.

The general indications for the use of high-frequency therapy are:

• Pain reduction

• Reduction of edema

• Improvement of mobilization

• Enabling faster tissue renewal (acute and chronic phase)

In gynecology for treatment:

• Inflammation

• Chronic pelvic pain

• Dryness of the genitals

• Anal fissures

• Postpartum recovery

• Episiotomy

• Recovery from caesarean section

High-frequency therapy is also used for cosmetic purposes in a way that balances cell metabolism, promoting skin tightening and rejuvenation. Treatments with continuous radiofrequency therapy improve muscle and skin tone by increasing circulation and stimulating the synthesis of collagen and elastin.

Contraindications for the use of high-frequency therapy are an implanted heart pacemaker, pregnancy, infected skin wound and tombophlebitis.

Loss of sensation in the form of hypoesthesia or anesthesia is a relative contraindication, i.e. the application is allowed but with caution when we want to achieve a thermal effect.

Diathermy-induced hyperthermia is being clinically tested for the treatment of cancer. Namely, a moderate increase in tissue temperature around a tumor can accelerate the rate of tumor growth and cause metastases, while on the other hand, at higher temperatures, malignant cells are thermolabile and are killed by temperatures higher than 42 ºC. Diathermy is effective in the treatment of certain neoplasms in humans, as an independent method or as a method that has a synergistic effect with ionizing radiation.

High-frequency electrotherapy is suitable for use after the surgical treatment of malignant tumors and other surgical interventions with the aim of reducing pain and faster healing of surgical wounds. All this leads to less dependence of the patient on another person. The preliminary conclusion in our study of 10 patients operated on for malignant tumors is that the pain component significantly decreased - VAS by 50% in just a couple of applications. But for more solid evidence, the number of treated patients is needed.

Effectiveness of High Frequency Electrotherapy in Postoperative Care of Abdominal Patients

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The use of high-frequency electrotherapy as a therapeutic approach in the postoperative care of abdominal patients significantly contributed to the recovery process. This paper shows the application of high-frequency electrical therapy in patients during the first postoperative day and analyzes the results in terms of pain reduction, improvement of scars and reduction of edema.

After surgical interventions in the abdominal region, be it a laparoscopic or classical approach, patients often experience pain, swelling and tissue damage around the incision. High frequency electrotherapy is a new approach to reduce these symptoms. In the therapies carried out during the period of 14 days postoperatively, the patients were applied high-frequency electrotherapy near the operative area with the application of manual therapy techniques (kinesitherapy).

Applying the high-frequency electrotherapy device to the patients, we used a sophisticated approach. The power of the device was gradually increased during each phase of the therapy in order to achieve the desired thermal effect (IAS). First, we performed a five-minute capacitive phase with an initial 20% device power, gradually increasing it until we reached the desired effect (IAS 6-7). This introductory phase served to prepare the target area. After that, there was a resistive phase lasting ten minutes, where we also gradually increased the power of the device up to about 30%, with current modulation. This approach enabled deep tissue action.

A capacitive electrode with an alloy provided surface action, while an alloy-free electrode in a resistive phase targeted deeper tissue layers. Such a holistic approach of gradually increasing the power of the device ensured precise and effective therapy, improving treatment results.

Application of high-frequency electrotherapy has been shown to be an effective way to reduce pain in most patients. According to the VAS scale, after 3-4 applications, a pain reduction of 30-50 percent was recorded. This reduction in pain significantly improved the patient's condition in terms of pain and edema reduction, the return to activities of daily life was accelerated.

Another key result was the impact of high-frequency electrotherapy on fibrosis (scars). A reduction in fibrosis and tightness around the operative incision was observed. This had a positive aesthetic and functional impact on recovery, allowing patients greater mobility and reduced discomfort during daily activities.

In conclusion, the application of high-frequency current electrotherapy in the postoperative care of abdominal patients brings significant benefits. Reduction of pain, improvement of scars and reduction of edema testify to the effectiveness of this therapy. Future studies may further investigate the optimal protocols of high-frequency current application to achieve maximum therapeutic effect and facilitate patient recovery.

In order to prove it, further research needs to be carried out.

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HOLISTIC WELLNESS CONCEPT - AROMATIC PLANTS A RESOURCE OF THE FUTURE

SUMMARY:

Aromatic cultures traditionally belong to Mediterranean areas, and knowledge and tradition are passed down from generation to generation. Plants, as part of heritage, belong to natural heritage. It is important because the human heritage is inseparable from the natural one, and therefore inseparable. Aromatic plants represent historically characteristic structures that bear witness to man's presence in space, and represent the joint work of man and nature. Aromatherapy is a part of phytotherapy (a discipline that uses plants and various herbal preparations to preserve health, also prevent and treat diseases). Aromatherapy uses pure, undiluted essential oils of natural origin from plants that have been grown or cultivated without chemical additives in an unpolluted environment. This topic is systematically studied throughout the world through natural and social sciences.

In today's time of stressful work processes, numerous organizations such as ISPA (International SPA association) promote innovative approaches and propose "new solutions for today's globally saturated market".

Clinical aromatherapy implies the wide use of essential oils and hydrolates as an aid in the persons chosen treatment. This method reduces stress, boosts the immune system and reduces the symptoms of diseases (infections, dementia, depression, etc.)

Rosmarinus acid - the greatest nutrient and antioxidant of the 21st century, which is obtained from the aromatic cultures of the Mediterranean is widely used in clinical aromatherapy, which is an integrative part of today's medicine.

The latest systems of nanotechnology - are used in aromatherapy as methods of prevention

but also treatment and can be widely used in health and wellness tourism. One of the development initiatives is The Fragrance Houses of Istria (Škoro, I. 2014). This encourages a higher level of SPIRITUAL HEALTH as a permeation of inner lifez, emotions, attitudes, beliefs, desires for satisfaction and self-actualization. This satisfies higher order needs (needs for love, belonging, learning, solving dilemmas).

The main capital in all spheres of the economy is a human. His productivity is a decisive factor of economic success.

Human productivity depends on his holistic satisfaction. Modern industrial society burdened with communication exchange often also results in latent psychosomatic disorders of individuals. Individual disorders lead to economic and entrepreneurial disorders and a decrease in work productivity. This indicates that human talent and human health will become the most expensive resource. Therefore, it is not surprising that holistic health

(wholeness), which is a prerequisite for wellness, becomes the key to the culture of living of the entire world community.

Wellness as a multidimensional state can provide quality programs (initiatives) that can influence the homeostasis of all spheres of the economy through aromatic cultures (as part of natural heritage) in the areas of Istria and Croatia. The initiation of new project ideas, due to recognition of the need for regeneration of mind and body, can bring benefits to the stakeholders through high profit margins. Wellness is a compound word that was created from two English expressions WELL being + fit NESS. Wellness is becoming globally recognized and represents not only a philosophy of life, but one of the leading industries in the world, which opens and connects numerous branches of economy, science and sports. People with modern view at the world and lifestyle expect that the offer of health tourism helps them achieve a very demanding goal, which is to preserve and improve holistic health in an easy and attractive way.

Aromatic cultures in the service of wellness would be based on a pyramid in two segments of

tourist motivation (lifestyle and health care). The first segment of the analysis includes a healthy diet, stress management and rest activities, active exercise, reducing toxins. The second segment of the analysis covers self-care and proactive medical care. A holistic approach that includes lifestyle and health care leads to a better understanding of the development paradigms of wellness.

Physiotherapy treatments of the pelvic floor, new approaches

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Dysfunctions of the pelvic floor were considered mostly from the field of gynecology, to a lesser extent from physiotherapy. The inclusion of kinesitherapy and physical procedures is not new in such conditions, but it is still insufficiently treated and without major studies of the effectiveness of physiotherapy approaches. In physiotherapy, the pelvic floor is best known for its stabilizing function, which, along with the diaphragm, forms the upper and lower support of the trunk, and is generally considered as such. With the development of new technologies, our approach to the treatment of pelvic floor dysfunction is also changing, whether it is narrowly aimed at solving urogynecological problems, but by no means without considering the bony, myofascial, ligamentous, neurological and muscular structures of the small and large pelvis as a whole, trunk stabilization, all the way to postural adaptation a person suffering from a dysfunction for which she sought help. In this presentation, the use of radio frequency of 448 KHz in the treatment of pelviperineal pathologies, more specifically in the involvement of the visceral ligamentous system (prolapse), hypotonia of the pelviperineal muscles (incontinence, prolapse), pain, limitations of contractility, injuries of the urethral or anorectal sphincter system and other conditions such as recovery after caesarean section, episiotomy, diastasis of the rectus abdoiminis muscle. Radiofrequency, along with simultaneous muscle activation, offers higher quality activation than was possible before, and thus faster and more efficient solutions for the above conditions.

Etiopathogenesis of affective disorders

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The causes and course of development of affective disorders, as well as their clinical presentations and mechanisms of action of available therapies, are very complex and insufficiently clarified. For example, based only on the symptoms of unipolar depression listed among the diagnostic criteria in the International Classification of Diseases of the World Health Organization and the Diagnostic and Statistical Manual of the American Psychiatric Association, more than 600 specific profiles of the disorder were distinguished, each of which can be etiopathogenetically special. Such diversity has led to convincing hypotheses that dispute our fundamental nomological principles, and even to a theory with relatively convincing evidence that the very question of "etiopathogenesis of affective disorders" is wrongly posed. Traditionally, it is possible to distinguish several, empirically sufficiently verified, etiological and pathogenetic theories. Biological factors: 1) neurochemical imbalance of neurotransmitter disorders such as serotonin, dopamine or noradrenaline, 2) hormonal imbalance, i.e. changes in the secretion of thyroid hormones, cortisol and sex hormones, 3) genetic factors proven by twin studies, 4) morphological and functional changes in certain brain regions, 5) reduced neurogenesis and neuroplasticity and reduced levels of BDNF. Psychological factors: 1) cognitive patterns such as a pessimistic view of the world, low self-confidence and feelings of hopelessness, 2) personality traits such as neuroticism, 3) early trauma, neglect or abuse in childhood, early loss of a parent, or pathological attachment mechanisms with parents. Environmental factors: 1) traumatic or stressful events in later life, 2) chronic physical diseases, 3) alcohol or drug abuse, 4) social isolation. Developmental factors: 1) Epigenetic factors and pathogenesis, 2) postpartum depression or psychosis of the mother, 3) hormonal changes during puberty and adolescence, 4) menopause. Cultural and social factors: 1) social pressure to conform to norms and roles, 2) discrimination and stigma based on immutable characteristics such as gender, race, sexual orientation, 3) experience and mediated experience of global traumatic events such as wars or natural disasters. Other factors: 1) seasonal changes in exposure to daylight, 2) sleep disorders, 3) nutritional disorders and lack of certain nutrients such as vitamin B or 3-fatty acids.

Depressive disorder and pelvic health in women

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Depressive disorder represents a significant public health problem, especially among the female population. And while symptoms of depression such as sadness, loss of interest, and feelings of worthlessness are widely recognized, the connection between depressive disorders and pelvic health is less well known. Pelvic health refers to the function and well-being of the pelvic organs, including the bladder, uterus, and bowels, or problems and diseases such as urinary incontinence, pelvic pain, pelvic organ prolapse, etc. The incidence of pelvic health problems is increased in women with depression. disorder. One of the causes of this association may be the physiological interaction of stress, which is often associated with depression, and the pelvic organs. Chronic stress can lead to tension in the pelvic muscles, which can cause pain and other symptoms. Hormonal changes that occur during depressive episodes can affect the function of the pelvic organs, especially the bladder and bowels. Women with a depressive disorder may be less motivated to take care of their pelvic health, which may lead to them ignoring symptoms or delaying seeking medical help. This can result in long-term and more serious complications. On the other hand, problems with pelvic health can contribute to the development of depressive symptoms. For example, chronic pelvic pain or urinary incontinence can lead to reduced quality of life, reduced self-confidence and social isolation, all of which are risk factors for depression. It is important to recognize this bidirectional association between depressive disorders and pelvic health in order to provide integrated care for women. Physicians and other health care professionals should be aware of this association and regularly assess pelvic health in women with depressive disorders. On the other hand, women with pelvic health problems should be regularly checked for the risk of depression and other affective disorders. In conclusion, depressive disorder and pelvic health are closely related, and recognizing and addressing both issues is critical to improving women's quality of life. An integrative approach that combines mental and physical health can provide the best results in treatment and prevention.

Perception of female infertility in the general population

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Introduction: Infertility is a disease of the male or female reproductive system defined by the inability to achieve pregnancy after 12 or more months of regular unprotected intercourse. The phenomenon of infertility is associated with a number of personal, family, psychological and social disorders, which are especially expressed in the female population. According to estimates by the World Health Organization (WHO), one in six people in the world suffers from infertility. Although both women and men can have the problem of infertility, society most often associates this problem with women. Infertility has significant negative social impacts on the lives of women, who often experience violence, divorce, social stigma, emotional stress, depression, anxiety and low self-esteem associated with the inability to conceive. The aim of the work is to examine the public's perception of female infertility. 202 respondents participated in the research, and it was carried out by distributing the survey questionnaire via the Internet during May 2023.

Discussion: Respondents who live in the city, are older and have a higher level of education believe that infertility is a social problem and that women are abused because of it. Respondents who have not been diagnosed with infertility but have not been able to get pregnant in the last 12 months are significantly more likely to think that infertility has a negative impact on their partner relationship than respondents who have been diagnosed.

Conclusion: The results of the conducted research showed the need to increase public awareness of infertility in order to reduce negative prejudices and stigma to a minimum and reduce the impact of infertility on women's mental health.

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Title: Minimally invasive treatment of ectopic pregnancy: comparison of the use of methotrexate (MTX) with endoscopic treatment

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Ectopic pregnancy (ET) is one of the most significant causes of morbidity, but unfortunately also the morbidity of women of reproductive age. Advances in medical science have enabled significant progress in the diagnosis and treatment of ET - earlier diagnosis, change in approach from open to laparoscopic surgery, as well as conservative treatment in a selected group of patients. Despite this, with an incidence of 0.6-2.0% of all pregnancies, it still causes 6.3 maternal deaths per 1 million live births. This is partly a consequence of the development of assisted reproduction methods, as well as a significantly higher frequency of caesarean sections, which can result in unusual presentations of ET that complicate diagnosis and standardization of procedures, and sometimes lead to suboptimal treatment. The most common site of ET is the fallopian tube (90-95%; including the interstitial part of the fallopian tube), other sites are the ovary, abdomen, cervix or caesarean section scar. The most significant risk factors for the occurrence of ET are past pelvic inflammatory disease, previous ET or previous surgical procedures on the fallopian tube, IVF procedures, use of intrauterine contraceptive devices. Ruptured ET is a significant cause of pregnancy-related deaths (2.7%) and the leading cause of bleeding-related deaths. The main symptoms are amenorrhea, uterine bleeding and pain. The diagnosis is made by ultrasound examination and serial monitoring of beta-HCG (BHCG) values. The determination of the so-called "discrimination" values of BHCG, in which a vital pregnancy inside the uterine cavity should be visualized by TV USG examination. Thus, for a BHCG value of 3500 mIU/mL, 99% of viable pregnancies inside the uterus should be visible. In doubtful situations, in order to exclude abnormal products of conception (spontaneous abortion of eutopic pregnancy), it is necessary to perform an abrasion or aspiration of the uterus. Spontaneous termination of ectopic pregnancy is possible in the form of spontaneous resolution, or rupture, which often results in profuse bleeding and a picture of an acute abdomen. In possible approaches to the treatment of ET, it is always necessary to consider cooperation, the patient's general condition, age and parity with future fertility plans, as well as the experience of the clinician and available resources. A conservative - expectant procedure is possible only in strictly selected patients with low initial BHCG values (up to 200 mIU/mL) in a serial decline, without ultrasound visible suspicious findings of the adnexa or threatening rupture. In all remaining cases, the treatment can be carried out conservatively – using Methotrexate in a single-dose or multi-dose regimen. The selection criteria for the use of the drug are hemodynamic stability of the patient, BHCG values below 5000 mIU/mL, and an ultrasound finding that excludes ET vitality. In addition to signs of existing or threatened rupture of ET, contraindications for the procedure include suspicion of heterotopic pregnancy, disturbed hepatological or renal tests as well as some autoimmune diseases. Surgical treatment of ET represents the gold standard of care. It is the exclusive method of choice in case of clearly visible vital or ruptured ET. In most cases today, a laparoscopic surgical procedure is used, where the options for intervention on the fallopian tube are salpingectomy or salpingotomy with ET aspiration. Several studies have not clearly demonstrated the

advantage of any one method over another in terms of the resulting cumulative fertility rate or the likelihood of repeat ET. In the case of salpingotomy, there is a slightly higher possibility of trophoblast persistence after the procedure (7% vs <1%), and the probability of a salpingectomy procedure (24%). Therefore, the choice of procedure depends on the preferences and experience of the operator. An overview of randomized studies comparing the success of surgical treatment with ET in relation to treatment with Methotrexate - while respecting the selection criteria for the use of the drug - in a single-dose regime of Mtx administration gives preference to surgical methods (88% vs 71%), but if Mtx is administered in multiple doses that difference is erased. The cumulative fertility rate for both procedures is comparable.

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POSTER SECTION

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Prenatal examination of the motor function of the fetal brain in low-risk and high-risk pregnancies

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Epidemiological research shows that many disorders of the central nervous system in adulthood have their origins in the fetal period. The possibility of prenatal detection of functional damage to the fetal brain could have multiple benefits in the diagnosis, prevention and treatment of the aforementioned diseases. Early detection would allow for an intervention that could benefit such children. On the other hand, a prenatal diagnosis of neurological damage would shake the prevailing opinion among parents, but also among some health professionals, that most of these damages occur during childbirth. Assessment of the integrity of the fetal nervous system is one of the priorities of modern perinatal medicine. One of the efforts to achieve this goal is the Kurjak Antenatal Neurodevelopmental Test - KANET. KANET evaluates fetal behavior by testing the motor activity of the fetus using 4D ultrasound. Patterns of fetal behavior and the way in which they change during gestation show the development and maturity of the central nervous system of the fetus. By assessing the behavior of the fetus, he can conclude about the functioning of his brain. Materials and methods: The subjects were pregnant women with a singleton pregnancy from 28 to 38 weeks of gestation – 51 pregnant women with low-risk and 56 pregnant women with high-risk pregnancy. We used the KANET scoring system to assess fetal behavior. Results: there was a statistically significant difference between high-risk and low-risk pregnancies, for 7 out of 8 parameters in KANET. In the high-risk pregnancy group, there was one abnormal and 5 borderline results, while in the low-risk pregnancy group, all test results were normal. Conclusion: There are differences in fetal behavior between low- and high-risk pregnancies. Further follow-up after delivery is needed to conclude whether prenatal testing of motor function can more strongly warn of fetal neurorisk.

The role of treatment of patients through the day hospital in the treatment of patients with pelvic case history - economic aspects

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The new time and dynamics related to the pace of life, the medical casuistry itself, labor legislation and conditionality as well as insurance in the health system, impose numerous challenges on all of us. The economic sustainability of the system certainly also conditions the normal functioning of the health care system, and therefore has significant repercussions on the quality of health care.

The announced and long-awaited healthcare reform will be very layered, and will ultimately generate a much better and better quality healthcare system, with far greater rationalizations and savings. It is precisely in this segment that the fact that new times impose new expectations, challenges and demands upon the entire society and the public health sector as well. At the same time, new obligations are imposed on all of us, both organizational ones, and those that require us all to change the paradigm, as well as changing the philosophy of our daily behavior at work. In addition to all of the above, new expectations are also imposed through the relationship with patients, which must be a team and partnership. Patients expect far more respect from us, an individual approach, as well as minimally invasive treatments, which will not disrupt their daily routine and impair their quality of life. It is the organization and complete functioning and organization of work of day hospitals and one-day surgeries that deal with the issue of pelvic medicine, which brings great challenges to the entire public health system.

It is certain that there are no simple solutions, because numerous professions need to be integrated and unified, from gynecologists, urologists, gastroenterologists, surgeons, radiologists, dermatologists, physiatrists, and numerous other medical professions. Through successful integration and organization, we bring an increase in quality and efficiency to the complete healthcare system, to the benefit of our patients, while ultimately the entire system gains efficiency, with exceptional savings with exact economic indicators.

Key words: organization of day hospitals, pelvic medicine, economic indicators

Prevalence of dysmenorrhea and pain managment among University students in Rijeka, Croatia

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Introduction: Dysmenorrhea is one of the most frequent gynaecological disorders among women in reproductive age. Nevertheless, it is commonly underdiagnosed as women mostly do not seek medical attention. Hence, the treatment of dysmenorrhea often comes down to self-medication that is predominantly ineffective and can lead to serious health consequences. The aim of this study was to determine the prevalence of dysmenorrhea and treatment methods among female students at University of Rijeka.

Matherials and methods: Data were collected as part of regular physical examination among students attending 1. academic year 2022/2023 of the University of Rijeka, Croatia. After applying exclusion criteria, altogether 431 female students were enrolled in the study. A descriptive quantitative analysis was carried out.

Results: The average age of participants was 19,52 years. The prevalence od dysmenorrhea was 61,5%, with prevalence of secondary dysmenorrhea being 5,3%. The intensity of pain was described as mild in 10,6%, moderate in 40,7%, and severe in 48,7% of cases. Even 49,4% of participants with dysmenorrhea use NSAIDs, 12,8% use paracetamol, 6,1% of them use alternative methods, 8,7% use combination therapy. Only 1,5% use oral contraceptives, whereas 21,5% just „puts up with the pain“. Among patients with severe pain, even 15,5% of them tolerates the pain or use alternative methods. Only 7,5% of students with dysmenorrhea consulted their health professional regarding treatment.

Conclusion: There is relatively high prevalence of dismenorrhea among female University students in Rijeka, Croatia. The fact that only 7,5% of university students consult health professionals, whereas 92,5% choose to self-medicate, NSAID-s being the most frequent treatment of choice, is extremely concerning. Hence, it is of great impotrance to consider establishing and implementing adequate health education programs in order to educate young women about the risks of self-medication and to stimulate them to seek medical advice and treatment regarding dismenorrhea.

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Stress urinary incontinence in young women

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INTRODUCTION:

More and more young women have problems with stress urinary incontinence. The mentioned fact has a significant impact on their quality of life, daily functioning and sexual function. Comprehensive women's health, but also functioning in society, public health aspects and numerous other parameters, come to the fore. For the reasons mentioned, the attitude towards younger and younger patients with stress urinary incontinence is also a big challenge. Precisely for this reason, in the approach to this population of patients, it is necessary to apply great knowledge, experience and indeed an individual, personalized approach. The last option, which must be aimed at younger patients with stress urinary incontinence, is precisely the surgical option. Surgical treatment of stress urinary incontinence in younger patients is really not the treatment of first choice, and is reserved for treatment when all other options have been exhausted. In the first place, with the mentioned population of patients, we can start with physical therapy alone, pelvic floor muscle exercises, application of laser and functional magnetic stimulation.

CONCLUSION:

Only when we have exhausted all the possibilities of minimally invasive conservative treatment do we approach, in consultation with the patient, a decision on surgical treatment of stress incontinence. It is also very important that the mentioned minimally invasive conservative treatment must be as sparing as possible for the patient.

Keywords:

Stress urinary incontinence, younger patients, minimally invasive approach

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Minimally invasive surgical approach to stress incontinence in women

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INTRODUCTION:

The minimally invasive surgical approach to stress incontinence in women is today truly the primary approach to the mentioned issue. As far as we have previously exhausted all other possibilities of a conservative minimally invasive approach in the treatment of stress urinary incontinence in women, very calculated and responsible, in agreement with the patient, it is necessary to agree on the most sparing surgical approach, which is determined according to individual characteristics with a personalized approach. After the expansion of the so-called sling method and the decades-long explosion of installation of the aforementioned materials and polypropylene meshes, we have come to a situation where the applications of the aforementioned surgical treatments have become very reduced and almost marginalized. Regardless of the truly minimally invasive approach of the aforementioned sling methods, a large number of subsequent complications, especially those related to the reaction to the polypropylene mesh itself, forced a very responsible reflection on all of us. It is certain that the most effective minimally invasive approaches are still being sought in the surgical treatment of stress urinary incontinence in women. Recently, great efforts have been invested in the invention and clinical application of new technologies and materials, but also in the reaffirmation of well-known and reliable minimally invasive surgical procedures.

CONCLUSION:

It is certain that the time ahead will bring great challenges, in the search for better and better quality minimally invasive approaches in the treatment of stress urinary incontinence in women. For all of us clinicians and practitioners, all of the above requires further engagement and continuous education and training, in order to respond most successfully to the needs of our patients and provide them with the best possible treatment and bring their improvement to life.

Keywords:

Stress urinary incontinence, minimally invasive surgical approach

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Massive life-threatening fetomaternal transfusion in a newborn - case report

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INTRODUCTION

Spontaneous fetomaternal transfusion is defined as the transfer of fetal blood into the maternal circulation without prior trauma or placental abruption. The pathogenesis is unclear. The volume of transfused blood is interpreted depending on the total volume of fetoplacental blood, which correlates with gestational age and fetal weight. Most of the bleeding is of small volume and without hemodynamic significance. Massive transfusion is a very rare phenomenon, and is defined as the loss of more than 20% of the fetoplacental blood volume. Warning factors are non-specific (ultrasound detected hydrops, changes in the CTG recording or reduced fetal movements). Massive acute transfusion most often results in the death of the fetus, while subacute and chronic transfusion can cause hydrops or severe fetal (neonatal) anemia. Severe anemia is rare, occurring in approximately 1 in 9,000 births. The volume of transfused fetal blood leading to severe anemia is not precisely defined.One of the more serious complications of massive transfusion is fetal (neonatal) anemia, a rare phenomenon that is described in approximately 1 in 9,000 births. The early outcome of a newborn with severe anemia depends on the rate and volume of blood loss in relation to the fetoplacental volume.

CASE REPORT

A 22-year-old pregnant woman was admitted for observation at 40+3 weeks due to the observed pathological CTG record. Due to the development of deep deceleration in the CTG record and threatening fetal asphyxia, the pregnancy was terminated by emergency caesarean section at 40+4 weeks of gestation. A male newborn was born, estimated by Farr at 40 weeks,

birth weight 3000 g, length 49 cm, and Apgar values 2, 6 and 9 in the 1st, 5th and 10th minutes, in meconium amniotic fluid. After birth, the newborn's skin was extremely pale, flaccid, adynamic, he was breathing independently, but hypopneic, eucardial, with an audible II/VI systolic murmur over the precordium. After the initial care measures, laboratory findings were made, which indicated profound anemia (Hb 44, Htc 0.136, E 1.42) and metabolic acidosis. On the basis of anamnestic, clinical and laboratory indicators, subacute fetomaternal transfusion was suspected as the cause of deep anemia, which was proven by the Kleihauer-Betke test for the detection of fetal erythrocytes in maternal blood, which spoke in favor of heavy fetomaternal transfusion (transfer of 175 ml of fetal blood into the maternal circulation , which is about 58% of the fetoplacental blood volume). After the implementation of supportive measures, primarily transfusion of erythrocyte concentrate, clinical improvement and gradual normalization of hemoglobin and hematocrit values and acid-base status were recorded.

CONCLUSION

Severe fetal (neonatal) anemia caused by fetomaternal transfusion is a rare phenomenon, which can very quickly result in a fatal outcome. Cooperation between gynecologists and pediatricians is necessary in order to make a timely diagnosis and start adequate treatment.

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Gastroenterology in pelvic medicine

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Introduction: The role of gastroenterology in pelvic medicine is exceptional. An increasing proportion of the population, both women and even more men, have disorders related to the gastrointestinal tract. Because of all the above, we have to take into account numerous factors, starting with stress, diet, environmental conditions and an irregular and sedentary lifestyle, as well as the lack of physical activity.

Discussion: It is certain that the increasing frequency of problems with the gastrointestinal tract has become an exceptional public health problem today. In the aforementioned context, the increasing frequency of benign and malignant tumors of the gastrointestinal system presents increasing challenges to the entire healthcare system and society. Precisely because of the aforementioned, it can be assumed that in the future we will have a very high frequency of gastrointestinal tumors as well as disorders, and that we need to adopt much more active strategies for the prevention of the mentioned diseases.

Conclusion: The goal of all of us today, but also in the future, must be the prevention of tumors and other diseases of the gastrointestinal tract. Only by investing in prevention and early detection, we can achieve significant public health breakthroughs and save human lives.

Keywords: gastroenterologist, pelvic medicine

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The role of the midwife in preserving women's health

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Introduction: Childbirth is a natural, unique and exceptional event that happens only a few times in a woman's life and has a strong impact on her physical, mental and social health.

The prevailing attitude of certain maternity hospitals about mandatory episiotomy in all primiparous women, a consequently, in the case of multiple births, in the last decade many studies refute that prove the expediency of episiotomy only in properly set indications for prevention pelvic floor discord. Research has shown that women who have had spontaneous

ruptures recovered in the same or less time with fewer complications than those they had

episiotomy.

Discussion: Various injuries can occur during spontaneous vaginal delivery. Vaginal injuries are classified as anterior and posterior. Anterior perineal injuries are injuries labia, anterior vaginal wall, urethra or clitoris and are usually associated with low back pain. Posterior perineal injuries are injuries to the back wall of the vagina, perineal muscles or obstetric injuries of the anal sphincter. The most serious are rear perineal injuries - perineal tears III. and IV. degree. Research on midwifery states that there is great potential for midwives to improve the quality of care. Furthermore, in centers and hospitals where midwifery practice is integrated and independent, maternal and fetal outcomes are improved through midwifery practice, philosophy and care.

Conclusion: Some of these outcomes are: lower risk of instrumental delivery, lower risk of episiotomy, reduced number of cesarean sections and reduced risk of infections. If there is no foreseeable pathology in childbirth, it is possible to avoid an episiotomy so that the delivery is not rushed, and the mother and midwife patiently follow the natural course. During childbirth, it is necessary to adopt a position that puts less pressure on the perineum, such as squatting upright or lying on the side. Standing and kneeling are positions that can also reduce perineum cracking. Applying a warm compress to the perineum during the last stage of labor can also reduce the likelihood of rupture. It is important to educate the woman in labor on how to relax the pelvic muscles and to follow the midwife's recommendations on when to push and when to breathe.

Key words: episiotomy, midwifery care, rupture of the perineum.

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