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ANALYSIS OF THE RELATIONSHIP BETWEEN EXTRAGENITAL FACTORS AND THE DEVELOPMENT OF GENITAL PROLAPSE IN WOMEN

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Genital prolapse continues to be a relevant gynecological issue, especially among older women. The importance of proper planning and timely execution of surgical treatment in such cases becomes particularly significant.

The purpose of this study was to establish the relationship between extragenital pathology and the development of genital prolapse.

A retrospective cohort study was conducted at Dnipro State Medical University, Department of Obstetrics and Gynecology, from 2012 to 2022, involving 1989 patients.

Genital prolapse (GP) investigation found 4.5 ± 0.2 concomitant extragenital pathologies, notably from intra-abdominal pressure-related conditions like lung diseases. Cardiovascular issues (hypertension 21.7%, ischemic heart disease 19.5%) were common, often with metabolic disorders. Connective tissue dysplasia (CTD) signs included foot deformities (9.1%) and hernias (8.4%). Importantly, 76.3% of GP patients had systemic CTD. This underscores GP's multifaceted nature and the importance of considering extragenital pathologies and CTD in assessment.

This investigation uncovered a diverse array of extragenital pathologies in genital prolapse (GP) patients, averaging 4.5 ± 0.2 conditions per patient. Elevated intra-abdominal pressure-related disorders, such as chronic obstructive lung diseases and allergies, stood out as significant contributors to GP. Cardiovascular issues, metabolic disorders, and connective tissue dysplasia (CTD) were also prevalent. Notably, 76.3% of GP patients displayed signs of systemic CTD, underscoring its pivotal role in GP development.

Key words: vaginal surgery, implant, stress incontinence, genital prolapse, postoperative complications, vaginal tissue.

Connection of the publication with planned research works.

This work is a fragment of the scientific topic "Development of new approaches to the diagnosis, treatment and prevention of gynecological and obstetric pathology". State registration number 0118U001277.

Introduction.

Genital prolapse (GP) remains a relevant gynecological condition, and its prevalence among elderly women ranks third among all diseases. Patients in this age group do not always adhere to the proper timing and approach to surgical rehabilitation, which can lead to the recurrence of genital prolapse (RGP) and negatively impact their quality of life. Numerous researchers hypothesize that the main factors contributing to the development of RGP are prolonged or excessive intra-abdominal pressure and dystrophic changes in the fascial-ligamentous apparatus of the genital organs (FLAGO), which determine their anatomical position. Researchers note that this process has a multifaceted nature [1]. A significant portion of these factors, in a certain way, is common to almost all women. However, there is a lack of comprehensive studies in the literature

that would present a multifactorial analysis of the causes of RGP development with an assessment of their mutual influence. The absence of a holistic approach to addressing this issue makes it impossible to rationally identify risk groups for the occurrence of RGP and determine effective ways to prevent it [2]. This has resulted in a high number of cases of recurrent GP development after surgical intervention, with the frequency of these recurrences ranging from 30% to 72% according to various authors [3].

The aim of the study.

Perform a detailed analysis of retrospective data to more accurately determine the contribution of extragenital pathology to the mechanism of genital prolapse development.

Object and research methods.

On the clinical basis of the Department of Obstetrics and Gynecology at the University of Dnipropetrovsk Medical Academy, Ministry of Health of Ukraine, as well as at the city center for plastic surgery in gynecology at City Clinical Hospital No. 9 during the period from 2012 to 2022, a total of 1853 patients were examined who had a recurrence of genital prolapse of degrees

II–IV according to the POP-Q classification (ICS, 1996). All patients provided written informed consent to participate in the study. The assessment of the localization and nature of the defect was carried out using the classification system of K.F. Slavyansky and the International Classification of Diseases (ICD-10), and the stage of prolapse was determined according to the POP-Q classification [3, 4].

To analyze the reasons for the development of genital prolapse (GP), patients were divided into two retrospective groups. The first retrospective group (R) included 1853 patients with confirmed GP. The second group (K) consisted of 136 patients without any complaints or signs of GP

Using mathematical and statistical methods in line with modern principles of evidence-based medicine, a comparative analysis of the research results was conducted, and prognostic criteria were developed to assess the risk of the development and complications of genital prolapse. The methods used included the t-test, analysis of variance, non-parametric analysis methods (χ^2 , Fisher's exact test), as well as correlation analysis, which included calculations of Spearman's (R) and Kendall's (τ) coefficients. Discriminant analysis was used to determine prognostic indicators, which allows finding differences between two or more groups of objects simultaneously based on different variables. Differences were considered statistically significant at $p < 0.05$. The analysis was conducted using the «Statistica 6.0» program (StatSoft, Inc. 2001) [5].

Research results and their discussion.

An assessment and characterization of concomitant extragenital pathology were conducted in patients with genital prolapse (GP) (see table). Virtually in all cases, various types of concomitant extragenital

Table – Distribution of extragenital factors between groups

Extragenital Pathology Type	Groups		OR	95% CI	P value
	P	K			
	N=1853, (%)	N=136, (%)			
Ischemic Heart Disease	362 (19,5)	40 (29,4)	0.58	0.40-0.86	0.006
Hypertensive Disease	402 (21,7)	35 (25,7)	0.80	0.54-1.19	0.27
Chronic Obstructive Pulmonary Disease (COPD), Bronchial Asthma	350 (18,9)	10 (7,4)	2.35	1.22-4.55	0.01
Varicose Vein Disease	46 (2,5)	12 (8,8)	0.26	0.14-0.51	0.0001
Diabetes Mellitus	25 (1,3)	8 (5,9)	0.22	0.1-0.49	0.003
Chronic Gastrointestinal Tract Disorders	192 (10,4)	9 (6,6)	1.63	0.82-3.26	0.16
Chronic Urinary System Disorders	107 (5,8)	12 (8,8)	0.63	0.34-1.18	0.15
Spinal Disorders	56 (3,0)	7 (5,1)	0.57	0.26-1.29	0.18
Foot Finger Deformation	168 (9,1)	3 (2,2)	4.42	1.39-14.03	0.01
Abdominal Wall Hernias	155 (8,4)	10 (7,4)	1.15	0.59-2.24	0.68
Connective Tissue Dysplasia	478 (25,8)	9 (6,6)	4.91	2.48-9.72	0.0001
Varicose Vein Disease of the Rectum	56 (3,0)	16 (11,8)	0.23	0.13-0.42	0.0001

pathology were detected – from 1 to 5 diseases in one patient with GP. Some of these diseases may be factors contributing to or involved in the pathological process. The average number of such pathologies was 4.5 ± 0.2 diseases per patient. Special attention was given to diseases associated with increased intra-abdominal pressure, such as chronic obstructive pulmonary diseases (COPD) and seasonal allergies. The analysis indicated a significant influence of prolonged elevation of intra-abdominal pressure on the development of GP. Signs confirming this interaction were found in 192 (10.4%) patients with gastrointestinal tract (GIT) diseases. Patients with established diseases of the distal segments of GIT and chronic respiratory diseases that could affect intra-abdominal pressure were also identified. Some diseases contribute to the development of GP in the presence of existing connective tissue dysplasia (CTD).

However, it is worth noting that approximately every fourth patient in Group R was diagnosed with cardiovascular pathology. Arterial hypertension (AH) was detected in 402 (21.7%) patients, and ischemic heart disease (IHD) in 362 (19.5%). Metabolic disorders, including carbohydrate and lipid metabolism, were diagnosed in 1.6% and 5.2% of patients,

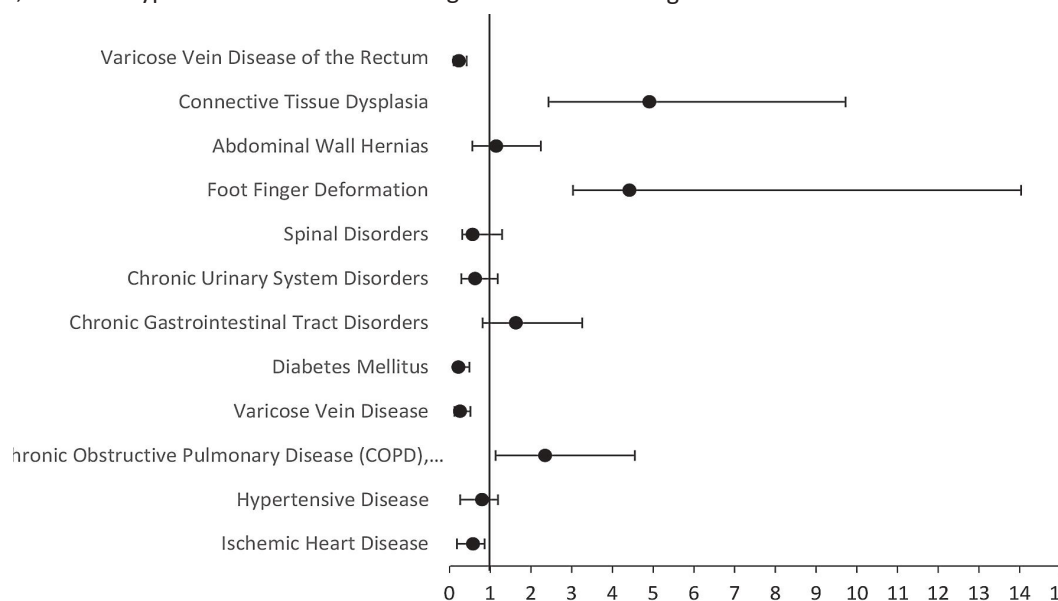


Figure – Odds ratios and confidence intervals of the studied extragenital factors.

respectively. It should be noted that the diagnosis of diabetes mellitus was established in all patients before the planned surgery, with type 2 diabetes being found in 24 patients and type 1 diabetes in 9 patients.

During the examination of women with GP, various signs of connective tissue dysplasia (CTD) were identified. The main such signs include deformities of the toes, which were observed in 168 (9.1%) patients, and hernias of various localizations diagnosed in 155 (8.4%) patients. Umbilical hernia or unilateral inguinal hernia was more commonly diagnosed. This pathology is a sign that can be associated with CTD. In addition, pathological conditions of the spine were found in 56 (3.0%) patients, as well as COPD, including bronchial asthma, in 350 (18.9%) patients. The average number of diseases indicating CTD was 1.9 ± 0.4 per patient.

Another important factor identified during the analysis is the domestic factor. In the medical history, 20.8% of women with GP had experience in caring for bedridden patients, which required prolonged physical exertion.

It is important to note that a high risk was established between existing CTD and the development of GP. It was found that patients with signs of systemic CTD in the background of conditions leading to increased intra-abdominal pressure accounted for 76.3% of the entire retrospective GP group. It was also important to separate systemic pathologies into a separate group that could lead to CTD and thereby promote the development of GP. The confidence intervals of the aforementioned factors are indicated in (figure).

Conclusions.

The general conclusion drawn from the obtained results points to the significant role of connective tissue dysplasia (CTD) in the mechanism of genital prolapse (GP) formation. It was found that 76.3% of women in the retrospective group had varying degrees of connective tissue dysplasia: 18.5% had a mild degree, 20.4% had a moderate degree, and 37.4% had a severe degree.

The majority of patients with GP (76.3%) exhibited a combination of various etiological risk factors, including signs of systemic CTD alongside conditions leading to increased intra-abdominal pressure. Therefore, it is important to consider the presence of CTD signs in the context of such conditions as a high-risk factor for GP development in women undergoing primary surgical intervention for GP, as well as a high risk of disease recurrence after surgical treatment.

Prospects for further research.

The findings of this study provide a foundation for further research and clinical considerations. Future studies could explore in more detail the specific extragenital pathologies that have the most significant impact on the development and recurrence of genital prolapse. Additionally, interventions and preventive measures targeting these extragenital conditions may be investigated to reduce the risk and improve the outcomes of genital prolapse in affected individuals. This research contributes to our understanding of the complex interplay between extragenital factors and genital prolapse, paving the way for more targeted and effective treatment approaches in the future.

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АНАЛІЗ ВЗАЄМОЗВ'ЯЗКУ МІЖ ЕКСТРАГЕНІТАЛЬНИМИ ФАКТОРАМИ ТА РОЗВИТКОМ ГЕНІТАЛЬНОГО ПРОЛАПСУ У ЖІНОК

Парієнко К. О., Нечаєв В. В.

Резюме. Генітальний пролапс (ГП), поширена гінекологічна проблема, є значущою проблемою для літніх жінок з точки зору здоров'я. Рецидив (ГП) може негативно впливати на якість життя. Підґрунтя розвитку РГП мають багатогранний характер, і фактори, такі як тривале підвищення внутрішньоабдомінального тиску та зміни в фасціальньо-зв'язковому апараті генітальних органів, є ключовими факторами.

Проте існує нестача всебічних досліджень, що стосуються багатогранної природи розвитку РГП, що ускладнює нашу можливість визначати групи з ризиком і ефективні стратегії його запобігання. У результаті РГП значна кількість випадків повертається після хірургічного лікування.

Для вирішення цієї прогалини було проведено дослідження на кафедрі акушерства та гінекології Дніпровського медичного університету в Україні з 2012 по 2022 рік. У дослідженні брали участь 1853 пацієнтки з рецидивуючим ГП (ступені II–IV) та 136 пацієнток без скарг на ГП. Метою було визначити роль екстрагенітальної патології в розвитку ГП.

Результати показали, що у пацієнтів з ГП часто спостерігалися супутні екстрагенітальні захворювання, в середньому 4,5 таких станів на пацієнта. Особливо слід відзначити, що хронічні обструктивні захворювання легень (ХОЗЛ) та алергії, які підвищують внутрішньоабдомінальний тиск, були значущо пов'язані з розвитком ГП.

Крім того, серцево-судинні захворювання, такі як артеріальна гіпертензія та ішемічна хвороба серця, були діагностовані у значної кількості пацієнтів. Метаболічні порушення, включаючи цукровий діабет, також були

поширеними. Ознаки дисплазії сполучної тканини (ДССТ), такі як деформації пальців і грижі, були помічені у багатьох пацієнтів.

Вражаючи, що пацієнти з ознаками системної ДССТ разом із станами, що призводять до підвищення внутрішньоабдомінального тиску, складали значну частку (76,3%) групи з ГП. Це підкреслює важливість врахування ДССТ як фактора високого ризику для розвитку та рецидиву ГП.

У висновку це дослідження підкреслює значущу роль ДССТ у механізмі формування та рецидиву ГП. Пацієнти з ГП часто мають комбінацію екстрагенітальних факторів ризику, що підкреслює необхідність врахування ДССТ в контексті станів, що призводять до підвищення внутрішньоабдомінального тиску. Ці результати відкривають шлях для подальших досліджень конкретних екстрагенітальних патологій та профілактичних заходів з метою покращення результатів лікування ГП. В кінцевому підсумку це дослідження поглиблює наше розуміння взаємодії між екстрагенітальними факторами та ГП і відкриває можливість для більш ефективних підходів до лікування у майбутньому.

Ключові слова: вагінальна хірургія, імплантат, стресова недостатність, генітальний пролапс, післяопераційні ускладнення, вагінальні тканини.

ANALYSIS OF THE RELATIONSHIP BETWEEN EXTRAGENITAL FACTORS AND THE DEVELOPMENT OF GENITAL PROLAPSE IN WOMEN

Pariienko K. O. Nechaiev V. V.

Abstract. Genital prolapse (GP), a prevalent gynecological condition, poses a significant health concern for elderly women. Its recurrence (RGP) can detrimentally affect their quality of life. The underlying causes of RGP are multifaceted, with factors such as prolonged intra-abdominal pressure and changes in the genital organ's fascial-ligamentous apparatus being key contributors.

However, there is a lack of comprehensive studies addressing the multifactorial nature of RGP development, hindering our ability to identify at-risk groups and effective prevention strategies. Consequently, RGP recurs in a substantial percentage of cases post-surgery.

To address this gap, a study was conducted at the Department of Obstetrics and Gynecology at the University of Dnipropetrovsk Medical Academy in Ukraine from 2012 to 2022. The study involved 1853 patients with recurrent GP (grades II–IV) and 136 patients without GP complaints. The aim was to determine the role of extragenital pathology in GP development.

The results revealed that patients with GP often had concomitant extragenital diseases, with an average of 4.5 such conditions per patient. Notably, chronic obstructive pulmonary diseases (COPD) and allergies, which increase intra-abdominal pressure, were significantly associated with GP development.

Additionally, cardiovascular conditions like arterial hypertension and ischemic heart disease were diagnosed in a substantial number of patients. Metabolic disorders, including diabetes, were also prevalent. Connective tissue dysplasia (CTD) signs, such as toe deformities and hernias, were observed in many patients.

It was striking that patients with signs of systemic CTD in conjunction with conditions leading to increased intra-abdominal pressure constituted a considerable proportion (76.3%) of the GP group. This highlights the importance of considering CTD as a high-risk factor for GP development and recurrence.

In conclusion, this study underscores the significant role of CTD in the mechanism of GP formation and recurrence. Patients with GP often exhibit a combination of extragenital risk factors, emphasizing the need to address CTD in the context of conditions leading to increased intra-abdominal pressure. These findings pave the way for further research into specific extragenital pathologies and preventive measures to improve GP outcomes. Ultimately, this research enhances our understanding of the interplay between extragenital factors and GP, offering potential for more effective treatment approaches in the future.

Key words: vaginal surgery, implant, stress incontinence, genital prolapse, postoperative complications, vaginal tissue.

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