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Research Article

**PREVENTABLE RISK FACTORS IN SYMPTOMATIC
FEMALES WITH SURGICAL INTERVENTION IN PAST FOR
STRESS URINARY INCONTINENCE AND PELVIC ORGAN
PROLAPSE**¹Dr Muhammad Tahir, ²Dr Maria Tariq, ¹Dr Farman Mahmood¹Bolan Medical College Quetta²Al-Khidmat Hospital Jhang**Abstract:**

Objective: The aim of this research work is to evaluate the preventable factors of risks in the females with past history of surgery for Stress Urinary Incontinence or/and Pelvic Organ Prolapse.

Methodology: We divided the 401 females with past history of surgery in to separate groups as; three hundred twenty-five females got surgery for pelvic organ prolapse and seventy-six females got surgery for stress urinary incontinence. Total two hundred and twenty-three patients were the part of control group with BMI and age matched who got surgery for benign gynecologic causes and they were present without any proofs for stress urinary incontinence and/or pelvic organ prolapse. We compared all these groups regarding their age, body mass index, parity, gravida, chronic diseases, delivery mode, habit of cigarette smoking and menopause status.

Results: Grand multi-parity (parity of equal or greater than 5) enhances the risk of pelvic organ prolapse / stress urinary incontinence surgery and pelvic organ prolapse surgery 2.710 and 2.940 times correspondingly. The birth through vagina enhanced the danger of pelvic organ prolapse / stress urinary incontinence surgery 2.330 times ($p=0.030$).

Conclusion: Grand multi-parity enhanced the danger of pelvic organ prolapse and/or stress urinary incontinence surgery and pelvic organ prolapse surgery whereas birth through vagina enhanced the danger of pelvic organ prolapse / stress urinary incontinence surgery. Among these factors, the only preventable factor of risk is the grand multi-parity.

KEYWORDS: Pelvic Organ Prolapse, Stress Urinary Incontinence, Grand, Multi-Parity, Surgery.

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INTRODUCTION:

The abnormalities of the pelvic floor are very health issue among adult females and the chances to undergo surgeries for pelvic organ prolapse or stress urinary incontinence of both estimated to be 11.10%, 12.10% and 19.0% in the USA, in UK and Australia correspondingly. The re-surgical risks for the stress urinary incontinence or pelvic organ prolapse vary from 19.0% to 29.0%. A research work conducted from Australia stated the rate of prevalence of 8.80% for the pelvic organ prolapse and 20.80% for stress urinary incontinence in the females. One other research from Europe stated an 8.30% occurrence of the symptomatic pelvic organ prolapse and 8.90% occurrence of stress urinary incontinence. One research work from Turkey stated an occurrence of 7.90% for stress urinary incontinence. With the increase of the age of females, the expected expenses for the health care facilities will also increase.

Formerly, elaborated factors of risks for the development of the pelvic organ prolapse and urinary incontinence included elder age, fatness, delivery through vagina, and high pressure of abdomen, habit of cigarette smoking, past history of hysterectomy and females with the symptoms of pelvic organ prolapse in the duration of pregnancy. Many research works have used the well-organized questionnaires for the determination of the risk factors for pelvic organ prolapse in general public but a very small proportion of the patients in those studies underwent surgeries of pelvic organ prolapse/stress urinary incontinence. Some research works have examined the risk factors that incline females who had undergone surgical interventions for pelvic organ prolapse and stress urinary incontinence.

METHODOLOGY:

We investigated the females with the past history of the surgeries from 2016 to 2018 and we also analyzed the records of the females who underwent surgeries for stress urinary incontinence or pelvic organ prolapse retrospectively. We also selected the group of controls with BMI and age matched who had undergone surgical interventions for benign causes and they were present with no symptoms of the pelvic organ prolapse or stress urinary incontinence. All the participants of the research work replied the questions related to short Performa of PFDI-20 (Pelvic Floor Distress Inventory) and PFIQ-7 (Pelvic Floor Impact Questionnaire). The ethical committee of the institute gave the permission to conduct this very research work. We divided the study group in two separate

groups as Group-1 contains the females who underwent pelvic organ prolapse and Group-2 contained the females who underwent stress urinary incontinence. We evaluated the control and study groups in terms of body mass index, age, parity, gravidity, and delivery mode, habit of cigarette smoking, menopause condition and chronic complications. We collected the data in accordance with the past authentic recommendations.

In this current research work, we defined the multiparity as the parity between 2 to 4 and grand multiparity as the parity equal or greater than five. We performed the staging of the pelvic organ prolapse in accordance with the system of Baden Walker halfway. We included the females diagnosed and had surgeries for pelvic organ prolapse in this research work. We defined the stress urinary incontinence in accordance with the standard definitions produced by the International Continence Society. We excluded the patients present with the different complications associated with this issue. According to a research work done in the past, minimum sample size of two hundred and thirty-three is the requirement to obtain the 80.0% power to identify two-fold disparity in parity among groups with a level of significance of 0.050. We presented the data in averages and standard deviations. ANOVA was in use for the analysis of the numerical data. We used the Kruskal-Wallis test for the comparison of the variables among all groups. We used the SPSS V.17 for the statistical analysis of the collected information.

RESULTS:

This research work consisted four hundred and one patients and included the group of pelvic organ prolapse (n: 325) and group of stress urinary incontinence (n: 76). The amount of the females who faced the symptoms of stress urinary incontinence and pelvic organ prolapse were forty. Total two hundred and thirty-three females with body mass index and age matched who experienced the surgeries for benign causes. Total six hundred and thirty-four persons were the participants of this research work. Females in study group were present pelvic organ prolapse Grade-2 or greater, whereas control group was present with Grade-0 or Grade-1 in accordance with the system of Baden-Walker halfway. There were no important disparities between study and control group in terms of body mass index, average gravidity, age is present in the Table-1.

Table-I: Comparison of The Baseline Characteristics of The Groups

Groups		Age (years)	BMI	Gravidity	Parity
Study (pelvic organ prolapse/stress urinary incontinence) group (n= 401)	Mean	27.60		4.90	(0-12)
	SD	3.50		2.60	
pelvic organ prolapse group (n=325)	Mean	27.92		4.94	(0-12)
	SD	3.80		2.60	
stress urinary incontinence group (n=76)	Mean	26.12		4.59	(0-11)
	SD	3.90		2.60	
Control group (n=233)	Mean	27.72		4.50	(2-9)
	SD	2.92		2.10	
P-value		p<0.001		p=0.033, N.S	N.S

The patients of pelvic organ prolapse group were older than the patients of stress urinary incontinence group in terms of average age. The summary of the general traits of every group is present in the Table-2.

Table-II: Comparison of General Characteristics Between Groups.

Characteristics	Study group (pelvic organ prolapse/stress urinary incontinence)		pelvic organ prolapse group (n=325)		stress urinary incontinence group (n=76)		Control group (n=233)		P-value
	No	%	No	%	No	%	No	%	
Null parity	5	1.20%	4	1.30%	1	1.80%	2	0.80%	NS
Prim parity	11	2.70%	10	3.30%	1	1.80%	3	1.20%	NS
Multiparity	279	69.50%	227	68.30%	57	75%	200	85.80%	0.00010
Grand multiparity	106	26.40%	90	27.60%	16	21%	28	12%	0.00030
Vaginal birth	378	94.20%	310	95.30%	68	89.40%	209	89.60%	0.03000
Caesarean section	4	0.90%	3	0.90%	1	1.30%	8	3.40%	NS
Vaginal birth + caesarean section	19	4.73%	14	4.30%	5	6.50%	16	6.80%	NS
Menopausal status	277	69.00%	241	74.10%	36	47.30%	96	41%	<0.0001
Hypertension	127	31.60%	100	33.20%	19	25%	66	28.30%	<0.0001
Diabetes mellitus	43	10.70%	36	11%	7	9.20%	21	9%	NS
Pulmonary disease	17	4.20%	12	3.60%	5	7%	8	3.40%	NS
Neurological disease	12	2.90%	11	3.30%	1	1.80%	3	1.20%	NS
Chronic diseases	175	43.60%	157	48.30%	28	36.80%	77	33%	0.01000
Smoking	35	8.70%	26	8%	9	11.80%	19	8.10%	NS

Multi-parity, grand multi-parity, delivery through vagina, Hypertension and chronic diseases are much common in the case group as compared to the group of controls. The factors of risks that were present with association with past pelvic organ prolapse or/and stress urinary incontinence operations are present in Table-3. Grand multi-parity and birth through vagina are the main risk factors related with the stress urinary incontinence/pelvic organ prolapse surgery.

Table-III: Risk Factors Associated With Previous Pelvic Organ Prolapse and / or Stress Urinary Incontinence Surgery

Risk Factors	Univariate Analysis OR (95% CI)	Multivariate Analysis OR (95% CI)
Age >50	2.630 (1.860 - 3.720) ^a	-
BMI >25	0.570 (0.400 - 0.880) ^a	-
Multiparity	0.380 (0.240 - 0.590) ^a	0.360 (0.220 - 0.570) ^b
Grand multiparity	2.630 (1.640 - 4.250) ^a 2.830 (2.730 - 4.640) ^b	2.710 (1.610 - 4.450) ^a 2.940 (2.50 - 5.240) ^b
Vaginal births including instrumental deliveries	2.580 (1.230 - 5.490) ^b	2.330 (1.10 - 4.360) ^a
Caesarean Section	0.280 (0.070 - 1.050) ^a	-
Menopause	3.190 (2.250 - 4.530) ^a 3.850 (2.620 - 5.670) ^b	2.620 (1.430 - 4.570) ^a 3.130 (2.140 - 4.910) ^b
Hypertension	2.540 (1.650 - 3.920) ^a 2.630 (1.680 - 4.130) ^b	-
Chronic diseases c	1.570 (1.100 - 2.230) ^a 1.650 (1.140 - 2.390) ^b	-

a: between study and control group, b: between pelvic organ prolapse and control group, c: chronic diseases

DISCUSSION:

This research work described that grand multi-parity and delivery through vagina are the most significant factors of risks for the surgeries for stress urinary incontinence and pelvic organ prolapse. Various research works always interrogated the parity as the factor of risk for the stress urinary incontinence and/or pelvic organ prolapse. A research work of past stated that danger of dysfunction of pelvic floor is not further enhanced by parity greater than 3.170, MacArthur stated that parity of equal or greater than four enhances the danger of UI and Abdel-Fattah stated the parity between two to four as the important risk factor for surgery of stress urinary incontinence or pelvic organ prolapse. This research work showed that the other important risk factor for the surgeries of stress urinary incontinence and/or pelvic organ prolapse is the normal delivery through vagina. This finding is in agreement with the results of many research works conducted in the past. Some research works stated that abdominal deliveries are more protective against the

dysfunction of the pelvic floor, but we were unable to reach this conclusion in this research work. De Boer stated that females with the previous surgeries of pelvic organ prolapse or UI are typically post-menopausal.

One other research work observed that menopause inclines females to the prolapse of pelvic organs of their body. In the results of this current research work, we were unable to find any relationship between menopausal condition and these surgeries. Two research works of the past based on the questionnaire stated no relationship of the elder age with the pelvic organ prolapse and the only relationship ads stated in these research works was between elder age and urinary incontinence. One other research work showed the association between the advance age with the pelvic organ prolapse and urinary incontinence. In addition to it, a research work provided the comparison of females with the symptoms of pelvic organ prolapse assessed for the stages of pelvic organ prolapse to asymptomatic healthy controls, also stated

that the age of the patients suffering from pelvic organ prolapse was much high. Some research works of the past have stated that increased body mass index is also an important risk factor for the surgeries of pelvic organ prolapse and stress urinary incontinence.

Some research works based on the questionnaires were not able to reach these results. Previous research works assessing age and body mass index as significant risk factors for the surgeries of pelvic organ prolapse and UI were inconsistent with the findings of this very research work. This research work showed no association of the body mass index greater than twenty-five with the surgeries of stress urinary incontinence and pelvic organ prolapse. Majority of the research work conducted in past have examined the general traits and risk factors for stress urinary incontinence or/and pelvic organ prolapse in accordance with the questionnaire-based works that contained the data about past surgeries and few studies among them lacked the data about the staging of the pelvic organ prolapse.

CONCLUSION:

The findings of this current research work concluded that grand multi-parity and delivery through vagina are the most important factors of risks for the surgeries of pelvic organ prolapse and/or stress urinary incontinence. Among the discovered risk factors, only the grand multi-parity is the preventable risk factor.

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