

The Risk Factors and Incidence of Perineal Tears among Pregnant Women

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ABSTRACT

Aim: To determine the risk factors and prevalence of perineal tear in low-risk pregnant females.

Study Design: A retrospective cross-sectional study.

Place and Duration: In the Obstetrics and Gynecology department of Khawaja Muhammad Safdar Medical College, Allama Iqbal Memorial Teaching Hospital Sialkot for one-year duration from January 2020 to December 2020.

Methods: The females with perineal tear after birth included in this study. A total of 400 females were selected for this study. Results are articulated as adjusted odds ratio (OR) and <0.05 of P value is considered significant.

Results: 400 total females had singleton vaginal delivery and perineal tears were noticed in 140 females. The episiotomy frequency for the total of 1st and 2nd degree, and 3rd and 4th degree (OASI) were 16.3%, 25%, and 1.5%, correspondingly. The perineal tear risk-factors are young mothers (teenagers OR = 5.6, 21-25 years OR = 4.3), primiparous women (OR = 12.6), gestational age less than 32 weeks OR = 0.175), received antenatal care (OR = 0.42), correspondingly. Primiparous females were 12.4 times more probable to have an episiotomy (OR = 12.4, 95% CI, 1.48-104.8, p = 0.02). A birth weight between 2.5-3.0 kgs and less than 2.5 kg (OR = 0.012 and 0.084, respectively) protects against Obstetric Anal Sphincter Injury.

Conclusions: The perineal injuries risk factors are comparable to those formerly described in other researches. There is an urgent need to train the gynae staff and doctors in proper selection for episiotomy and better perineal care in order to improve obstetric services in the Gynecology department. Identifying those at danger can decrease obstetric perineal injuries.

Keywords: Low risk pregnancy, episiotomy, low-risk pregnancy and Obstetric Anal Sphincter Injury.

INTRODUCTION

Significant perineal injuries, such as 3rd- and 4th-degree injuries, involve anal sphincter complex without or with Obstetric Anal Sphincter Injury at delivery and is regarded as a serious form of injury to the perineum with adverse long and short-term outcomes for mothers, such as anal incontinence and pelvic floor disorders¹⁻². These injuries, including episiotomy, are one of several indicators that are used to measure outcomes related to the quality of maternity care³⁻⁴. Episiotomy is done frequently at a lower and higher healthcare facility to prevent severe tearing from occurring more frequently during home childbirth⁵⁻⁶. The UK (85%) and Iran (84.3%) report higher overall rates of perineal tear⁷⁻⁸. The minimum of 64% frequency amongst the low-risk gestations was recorded in Brazil (2019). The well-known risk factors for perineal tears include advanced age, motherly factors such as fast delivery and very narrow entry, and fetal factors like large fetus and poor presentation. Obstetric associated risk factors include episiotomy, assisted delivery and prolonged episiotomy are the few perineal tear risk factors⁹⁻¹⁰. Reported risk factors for OASI are: poor presentation, firstborns, assisted delivery, HIV negative maternal status, and new-born birth weight. A current systematic review of "Trauma during Birth" from Middle- and Low-Income States like Pakistan stated that the general episiotomy, 2nd degree and rates of OASI are 47%, 25% and 1.5%, respectively¹¹. The high percentage of perineal tears are seen in middle and low-income states hospitals¹². The purpose of this study is to determine the risk factors and prevalence of perineal tear in low-risk pregnant females.

MATERIALS AND METHODS

A retrospective cross-sectional study was held in the Obstetrics and Gynecology department of Khawaja Muhammad Safdar Medical College, Allama Iqbal Memorial Teaching Hospital Sialkot for one-year duration from January 2020 to December 2020. The non-random, purposive selection technique was used for sample selection. The data was collected from the hospital records. Inclusion criteria was females with singleton vaginal delivery, Cephalic and longitudinal presentation, no other co-morbidities and exclusion criteria was females with known disorders, multiple pregnancies and refused to participate in the study. The history of

the patients was taken which includes number of births, age, time of admission, gestational age, infant birth weight in kilograms (kg), duration of delivery, Apgar scores, antenatal care history, delivery outcomes and maternal perineal injuries. The other factors which were evaluated includes parity, age, ANC booking formerly 20 weeks, ANC booking, HIV status and number of ANC visits. The perineal injuries outcome variables are classified as spontaneous (1st, 2nd and OASI) injuries and induced (episiotomy). SPSS version 22 and Microsoft Excel were used to enter and analyse the data. Bivariate analysis of the dependent and independent variables was performed by means of the Chi-square (χ^2) test to recognize the aspects related with the outcome variables; It is expressed as adjusted odds ratios (ORs) with binary logistic regression analysis and its corresponding two-sided 95% confidence interval (95% CI) used to identify possible predictors of outcomes. Ethical approval was taken.

RESULTS

400 total females had singleton vaginal delivery and perineal tears were noticed in 171 females. Above fifty percent (65.5%) were aged 20-30. women over 35 and teenage accounted for 5.8% and 15%, correspondingly. 181 (45.3%) had parity from 1 to 2 and about 2.5% only had parity ≥ 5 . Most (77.5%) were born at term and 22.5% were born at 32 weeks of GA or earlier. Only 10% did not initiate an ANC at all (unreserved). The majority of women (47.5%) had 5 to 7 ANC visits, and 1/4th (28%) had 8 or more visits of ANC during gestation. The incidence of spontaneous and induced tears (perineal incision) was 22.5% and 17.3%, respectively. The incidence of first- and second-degree spontaneous perineal tears and OASI were 16.3%, 25%, and 1.5%, correspondingly. Though, nine (2.3%) had an OASI and an episiotomy. [Table-1]

Table-1: Outcome and baseline variables of the studied people

Variables		
Age in Years	<20	60
	20-25	102
	26-30	160
	31-35	55
	>35	23
Gestational age in weeks	Less than 32 weeks	90

	≥ 37 weeks	310
Parity	0	80
	1-2	181
	3-4	129
	≥ 5	10
ANC booked females	Yes	360
	No	40
No of antenatal visits	0	21
	1-4	77
	5-7	190
	≥8	112
Baby Gender	Male	170
	Female	230
Birth weight in Kg	Less than 2.5kg	62
	2.5-3.0	165
	3.1-3.5	150
	>3.5	23
Perineal Injury	Episiotomy	75
	Intact	154
	First degree	65
	Second degree	100
	3 rd and 4 th degree	6

The perineal tear risk-factors are young mothers (teenagers OR = 5.6, 21-25 years OR = 4.3), primiparous women (OR = 12.6), age of gestation less than 32 weeks OR = 0.175), received antenatal care (OR = 0.42), correspondingly. Primiparous females were 12.4 times more probable to have an episiotomy (OR = 12.4, 95% CI, 1.48-104.8, p = 0.02). [Table 2]

Table-2: The perineal tears output and Logistic regression

Variables	p-value	Adjusted odds ratio (OR)	95% CI for OR	
			Lower	Upper
Age coded	.006			
< 20 years	.004	5.612	1.648	17.72
21-25 years	.008	4.300	1.354	13.31
26-30 years	.051	3.096	1.165	9.520
31-35 years	.112	2.571	.475	7.356
Parity coded	.000			
Parity nil	.025	12.569	1.189	105.431
1-2 Parity	.805	1.298	.135	10.965
3-4 Parity	.632	.554	.066	4.665
Given ANC	.022			
ANC (Yes)	.051	.421	.181	.981
GA coded	.003			
GA < 32 weeks	.003	.175	.051	.536
GA 32-36 weeks	.041	.612	.382	.998
Constant	.009	.052		

Table-3: Logistic regression output for all episiotomy

Variables	p-value	Adjusted OR	95% CI OR	
			Lower	Upper
Age coded	.002			
< 20 years	.004	2.826	1.567	5.169
21-25 years	.007	2.321	1.545	3.753
26-30 years	.401	1.941	.895	2.195
31-35 years	.175	1.451	.902	2.658
Parity coded	.000			
Parity nil	.002	16.264	3.568	75.654
1-2 Parity	.165	3.020	.685	13.12
3-4 Parity	.591	1.689	.331	7.654
Given ANC	.035	.485	.225	.995
GA coded	.000			
< 32 weeks of GA	.000	.054	.019	.178
33-36 weeks of GA	.080	.725	.485	1.039
Constant	.022	.158		

Neonatal weight at birth was the only forecaster of OASI. A birth weight between 2.5-3.0 kgs and less than 2.5 kg (OR = 0.012 and 0.084, respectively) protects against Obstetric Anal Sphincter Injury. [Table-4]

Table-4: OASI output Logistic regression

Variables	p-values	Adjusted odds ratio (OR)	95% CI for OR	
			Lower	Upper
GA coded	.301			
< 32 weeks of GA	.251	.000	.000	.
33-36 weeks of GA	.995	5.410	.695	41.417
Birth weight coded	.093			
< 2.5 kg of Birth weight	.002	.017	.002	.331
2.5-3.0 Kg of Birth weight	.031	.084	.012	.738
3.01-3.5 Kg of Birth weight	.055	.211	.034	1.785
Age coded	.166			
Age < 20 years	.734	1.745	.097	32.820
Age 20-29 years	.067	6.693	.712	60.495
Constant	.086	.155		

DISCUSSION

This study assesses the prevalence of all perineal tears types and evaluates risk factors for various perineal tears types. The overall ratio of perineal tear in this study was lesser than that of Tanzania (80%), England (85%) and Brazil (64%)¹³⁻¹⁴. It has also been found that the incidence of perineal tears is advanced amongst pregnant black African females than amongst other races¹⁵⁻¹⁶. The various perineal tear types incidence was institute to differ significantly under the different study conditions, with the highest incidence in hospital in comparison to social settings in Nicaragua and Sweden¹⁷⁻¹⁸. Spontaneous 1st and 2nd degree injuries of perineum (combined) accounted for 41.3% in our study, as was 43% estimated from the pooled LMICs meta-analysis. Although both injuries are minor, they deserve much care, particularly 2nd-degree wounds, as they involve the perineum muscles¹⁹. Although the muscle injury is categorized as a secondary injury and is comparable to an episiotomy, surgical repair was needed in both types of injuries²⁰. The levator ani muscle injuries specifically, often worsen and can lead to the disorders of pelvic floor in future adulthood. The perineal tear risk factors have been well reported in earlier studies²¹. In our study, younger nulliparous women (adolescents <twenty years old and 20-29 years old) were associated with all perineal tears that were identified in previous reports. The comparative elasticity of the perineum in women who are nulliparous decreases after one or more deliveries compared to multiparous women, which result in tearing of perineum and need an episiotomy²²⁻²³.

In this analysis, females with <32 weeks of gestational age have 95% lower risk of perineal tears than in full term pregnancy. There are few researches measuring age of gestation as a perineal injury risk factor. One Indian case-control study conducted in tertiary Hospital showed no relation between gestational age and perineal tears. In this study; episiotomy frequency was 24.3% greater than the WHO recommended rate²⁴. Though, this frequency is lesser than the Ethiopian report, where 35% was the episiotomy rate. It was found that gravid females who received antenatal care during pregnancy protected against an episiotomy (odds ratio = 0.45). A previous report highlighted that prenatal care can reduce the number of perineal injuries or episodes in the antenatal period. It has been found that antenatal education during antenatal contact prepares pregnant women for childbirth and postpartum, which has a positive effect on the healing of perineal wounds and compliance with their care²⁵. However, it can be assumed that health education, safety and the relationship that is formed between the health care provider and the pregnant females in the prenatal period can reduce psychological stress, improve cooperation, causing perineal relaxing, as well as give birth correctly and at the time of a strong spasms in uterus leading to the avoidance of perineal trauma or an episiotomy. This study had OASI rate of only 1.2% which is comparable to the frequency in Mexico (0.9% for all deliveries by vagina) and Brazil (0.82% for low-risk gestations)²⁶.

CONCLUSION

The perineal injuries risk factors are comparable to those formerly described in other researches. There is an urgent need to train the gynae staff and doctors in proper selection for episiotomy and better perineal care in order to improve obstetric services in the Gynecology department. Identifying those at danger can decrease obstetric perineal injuries.

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