Abstract 753:

Indian subcontinent ethnicity as a risk factor to develop anal sphincter injury during vaginal delivery

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INTRODUCTION

Obstetric anal sphincter injuries (OASIS) are the leading cause of incontinence fecal in women, as well as other disabling conditions in the short and long term.

Recent studies suggest that maternal ethnicity may play a role in the risk of these injuries. Retrospective studies have identified Asian ethnicity as a risk factor for OASI, specifically in South and Southeast Asian women and those from the Pacific Islands.

A relevant proportion of women who give birth at the Hospital del Mar (Barcelona), approximately 20% are from countries of the Indian subcontinent such as Pakistan, India, Nepal or Bangladesh.

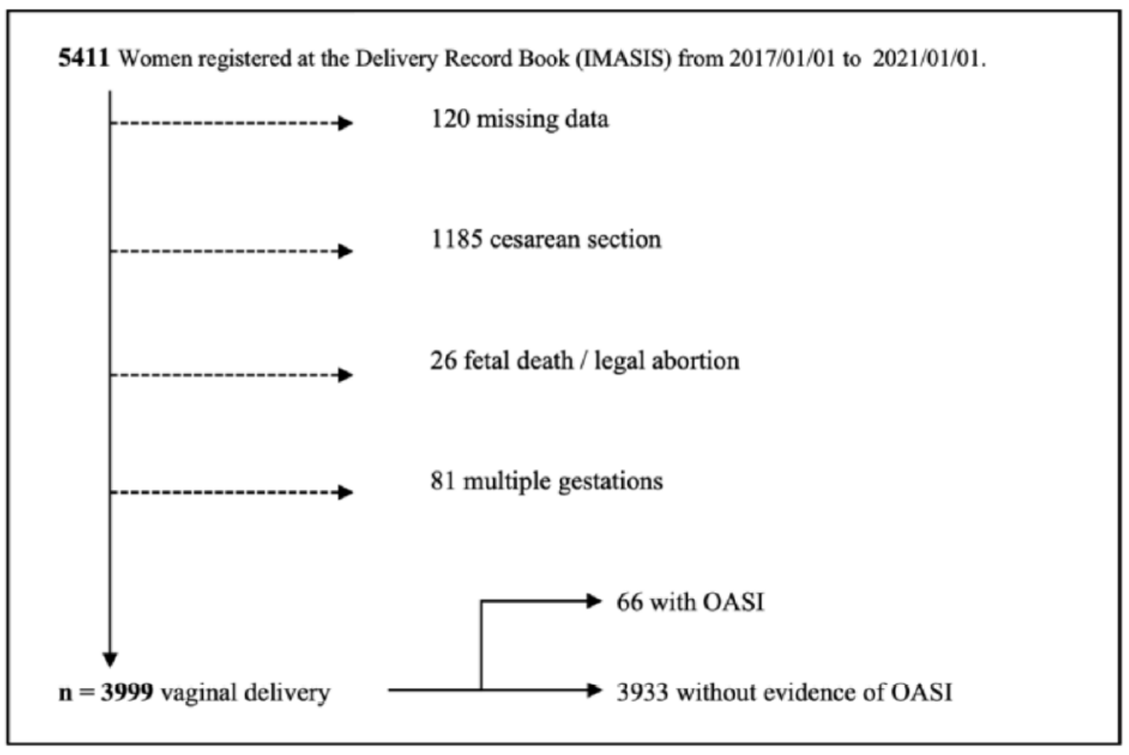
AIMS OF THE STUDY

The **main objective was to investigate whether women from the Indian subcontinent (India, Pakistan, Bangladesh) are at increased risk of anal sphincter tears (anal sphincter tears perineal type III and IV) during vaginal delivery**.

Secondary objective was to study the role of the type of delivery, maternal age, health professional who assists the delivery, episiotomy, fetal weight, parity and type of anesthesia as possible risk factors for this condition.

STUDY DESIGN, MATERIALS AND METHODS

Figure 1- Flow diagram of the included patients. OASIS



This is a retrospective analytical observational case-control study performed in the Gynecology and Obstetrics Department of the Hospital del Mar, in Barcelona. This study was approved by the clinical research ethics committee from IMIM on 01/12/2022 with file number: 2021/10116.

Data were collected from all births assisted at this center between 1 January 2017 and 1 January 2021. Cesarean sections, fetal deaths or legal terminations of pregnancy, multiple pregnancies and losses due to pregnancy deficiency information were excluded from the data analysis, leaving a total of 3999 women in the final study (see diagram flow of Figure 1).

Among these, patients with obstetric injury to the anal sphincter were selected (n=66, type III and IV perineal tears), constituting the group of cases. They were compared with the control group, made up of patients without anal sphincter injury (n=3933, without tear or with type I or II perineal tears). The Information was collected retrospectively through the birth book and clinical history computerized in the IMASIS system of the Hospital del Mar.

The main dependent variable studied was the maternal ethnicity. The country of origin was documented in the computerized birth record by the doctor or midwife who attended the delivery. In the absence of this data, this information was obtained from other documents in the patient's electronic medical record. Ethnicity was classified into different geographical groups: Indian subcontinent, North Africa and the Middle East, Africa sub-Saharan, Latin America, East Asia and Caucasian.

REFERENCES

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RESULTS AND INTERPRETATION

During the period studied, 5411 births were attended in Hospital del Mar, of which 3999 were vaginal deliveries that met the inclusion criteria. 66 OASI were diagnosed (1.22% for all births and 1.65% for vaginal births). Type of OASI is described in Figure 2.

The main proportion of the patients studied (49%) were Caucasian, followed by those from the Indian subcontinent (22%). 43% of women were primiparous and 77% used epidural analgesia. 9.8% of the vaginal births were assisted by forceps and in 25.18% a mediolateral episiotomy was performed. The characteristics of the patients of both groups are shown in Table 1. Univariate and multivariate analysis are shown in Table 2.

Figure 2- OASIS Prevalence n= 66.

- 3999 vaginal deliveries
- 66 OASIS

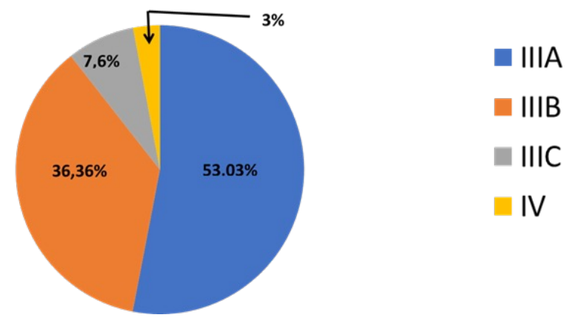

Table1- Baseline characteristics

	No OASI n = 3933	OASI n = 66	p-value*
Insulinized diabetes	154 (3.9%)	1 (1.5%)	0.519
Mother age; mean (sd) [c]	30.83 (6.0)	28.97 (5.4)	0.005
Type of delivery [b]			<0.001
Non operative	3459 (87.9%)	32 (48.5%)	
Operative - Vacuum	40 (1.0%)	1 (1.5%)	
Operative - Spatula	73 (1.9%)	2 (3.0%)	
Operative - Forceps	361 (9.2%)	31 (47.0%)	
Assistance [b]			0.301
Midwife	1222 (42.0%)	14 (35%)	
Physician	203 (7.0%)	5 (12.5%)	
Resident Physician	1484 (51.0%)	21 (52.5%)	
Labor induction [a]	1006 (98.3%)	17 (1.7%)	0.934
Birth weight [a]			0.477
≥3500g	1153 (29.3%)	22 (33.3%)	
<3500g	2780 (70.7%)	44 (66.7%)	
Type of anesthesia [b]			0.611
No anesthesia	892 (22.7%)	17 (25.8%)	
Epidural	3030 (77.0%)	49 (74.2%)	
Intradural	8 (0.2%)	0 (0.0%)	
Regional (Pudendum)	3 (0.1%)	0 (0.0%)	
Parity [b]			<0.001
Primiparous	1681 (42.7%)	47 (71.2%)	
Secundiparous	1355 (34.5%)	17 (25.8%)	
Multiparous	897 (22.8%)	2 (3.0%)	
Episiotomy [a]	974 (24.8%)	33 (50.0%)	<0.001
Mother origin [b]			0.006
Indian Subcontinent	879 (22.3%)	27 (40.9%)	
Caucasic	1926 (49.0%)	26 (39.4%)	
East Asia	159 (4.0%)	3 (4.5%)	
Sub-Saharan Africa	33 (0.8%)	1 (1.5%)	
North Africa and Middle East	349 (8.9%)	1 (1.5%)	
Latin America	587 (14.9%)	8 (12.1%)	

OASI: Obstetric Anal Sphincter Injury. Continuous variables are given as means and standard deviation (sd), categoric variables as number and percentage.

[a] Chi squared (X^2).
[b] Exact Fisher test.
[c] U Mann- Whitney.

Table 2- Univariable and multivariable analysis

	No OASI n= 3933	OASI n= 66	Univariate OR (IC 95%)	Univariate p-value	Multivariate OR (IC 95%)	Multivariate p-value
Insulinized diabetis	154 (3.9%)	1 (1.5%)	0.38 (0.05-2.74)	0.340		
Mother age; mean (sd)	30.83 (6.0)	28.97 (5.4)	0.95 (0.91-0.99)	0.014	0.96 (0.91-1.02)	0.164
Type of delivery						
Non operative	3459 (87.9%)	32 (48.5%)	*Ref.*		*Ref.*	
Operative – Spatula/Vacuum	113 (2.9%)	3 (4.5%)	2.87 (0.87-9.51)	0.085		
Operative – Forceps	361 (9.2%)	31 (47.0%)	9.28 (5.59-15.39)	<0.001	13.70 (4.39-42.80)	<0.001
Assistance						
Midwife	1222 (42.0%)	14 (35%)	*Ref.*		*Ref.*	
Physician	203 (7.0%)	5 (12.5%)	2.15 (0.77-6.03)	0.146		
Resident Physician	1484 (51.0%)	21 (52.5%)	1.24 (0.63-2.44)	0.543		
Labor induction	1006 (98.3%)	17 (1.7%)	1.01 (0.58-1.77)	0.974		
Birth weight ≥3500g	1153 (29.3%)	22 (33.3%)	1.21 (0.72-2.02)	0.478		
Type of anesthesia						
No anesthesia/ Regional	895 (22.8%)	17 (25.8%)	*Ref.*		*Ref.*	
Epidural/ Intradural	3038 (77.2%)	49 (74.2%)	0.85 (0.49-1.49)	0.565		
Parity						
Secundiparous/ Multiparous	2252 (57.3%)	19 (28.8%)	*Ref.*		*Ref.*	
Primiparous	1681 (42.7%)	47 (71.2%)	3.31 (1.93-5.67)	<0.001	3.56 (1.58-8.04)	0.002
Episiotomy	974 (24.8%)	33 (50.0%)	3.04 (1.87-4.95)	<0.001	0.65 (0.25-1.73)	0.385
Mother origin						
All other origins	3054 (77.7.%)	39 (59.1%)	*Ref.*		*Ref.*	
Indian subcontinent	879 (22.3%)	27 (40.9%)	2.41 (1.46-3.96)	<0.001	2.97 (1.48-5.97)	0.002

OASI: Obstetric Anal Sphincter Injury; OR: Odds Ratio; 95% CI: 95% confidence interval; Ref.: reference value.
Continuous variables are given as means and standard deviation (sd), categoric variables as number and percentage.

The literature indicates Asian ethnicity as a possible risk factor for OASI, specifically in women coming from the south, southeast and Pacific islands. The results of our analysis are consistent with these previous publications identifying a significant increased risk in women from India, Pakistan, Nepal and Bangladesh (Indian subcontinent) to suffer an OASI. In our study, women from these countries presented twice the risk of OASI than women from other ethnicities. Anatomical differences and language or cultural barriers could be related to these disparities

The main limitations of our study derive from its retrospective nature and the low prevalence of OASIS.

CONCLUSIONS

Our study suggests that women from the Indian subcontinent have significantly increased risk of suffering an obstetrical anal sphincter tear. Besides, primiparity and instrumental deliveries seem to be independent risk factors for suffering an OASI.