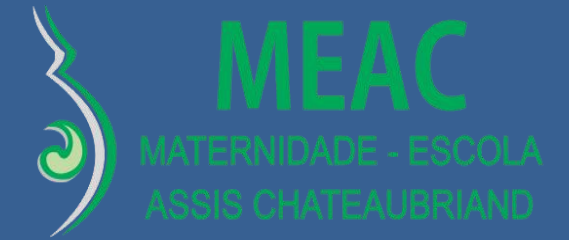




Effects of vaginal delivery on the pelvic floor: cohort study

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Abstract

OASIS are the most severe forms of trauma and are extremely unwanted as they have negative effects on the quality of life of these women, since 2003, OASIS lesions have been included as an indicator of quality in obstetric care. incidences were found between 0.5 and 23.9%, and more common in primiparous women (6.9%) than in multiparous women (1.7%). Even though they are infrequent, they still cause a greater anatomical, functional and psychological impact compared to other perineal traumas. The higher the grade of OASIS, the greater the likelihood of a worse outcome, for example, women with grade 3c and 4 injuries are twice as likely to develop fecal urgency, three times more anal incontinence and 5 times more genital prolapse. The diagnosis, repair and follow-up of OASIS must occur as early as possible, in order to avoid immediate and late sequelae, as well as increased costs in health systems, as well as litigation.

The purpose of carrying out the study was to outline a sociodemographic profile and gestational, childbirth and newborn risk factors of a Brazilian population, which presented an OASIS lesion, in addition to showing an association of symptoms of pelvic pain, dyspareunia, AI and UI, and their impacts on quality of life and sexuality, were demonstrated in the results.

Introduction

Perineal damage associated with vaginal birth occurs in up to 85% of women and generates short- and long-term complications, especially when they are severe (OASIS - obstetric anal sphincter injuries) which, despite fewer incidents, cause greater anatomical impact, functional, psychological and financial, extremely unwanted as they promote negative effects on the quality of life of these women.

The incidence of urinary incontinence (UI) after OASIS varies in the world literature at around 13 – 46% after the third month of postpartum, with authors also stating that there is no difference in the incidence of UI in women with and without OASIS¹.

The signs and symptoms commonly observed in patients after OASIS are pelvic pain, lower urinary tract symptoms, anal incontinence (AI), dyspareunia, muscle disorders, infections, surgical wound dehiscence and rectus-vaginal fistula².

The influence of OASIS on the long-term prevalence of such symptoms has been reasonably studied, however, existing results are conflicting. Furthermore, factors associated with the development of such symptoms remain unclear in the literature³.

Methods and Materials

A prospective cohort study was carried out with women who had recently given birth vaginally with (G2) and without (G1) OASIS lesions, between July 2022 and January 2024.

Sociodemographic, pregnancy and birth data, recorded in medical records, and the scores of the "quality of life" questionnaires: Pelvic Floor Distress Inventory – Short Form – 20 (PFDI – 20), Pelvic Floor Impact Questionnaire (PFIQ – 7), Female Sexual Function Index (FSFI), and general quality of life (Short form – SF 36), were analyzed at the time of hospitalization (T0) and 3 months (T1) after birth, comparing the groups.

The database was structured in an Excel® spreadsheet and was evaluated for normality distribution using the Kolmogorov Smirnov test. Afterwards, the Mann-Whitney test, Pearson's Chi-Square test, Fisher's exact test, and the Friedman/Dunn test were applied.

Table 1. Data on pregnancy and childbirth with comparative analysis between groups.

	Group 1	Group 2	P-Value
Previous Vaginal Birth			
None	49.3%	81.8%	0,030
1	29.0%	13.6%	
2	18.8%	4.6%	
Analgesia	15,9%	36,4%	0,041
Vacuum-Extractor	2.9%	14.3%	0,046
Newborn Weight	3084.76±437.06	3446.84±397.84	0,002

Table 2. Data on Urinary Incontinence (UI) with comparative analysis between groups.

UI	Total	Group 1	Group 2	P-value
T0	37,4%	82,4%	17,6%	
T1	7,4%	40,0%	60,0%	0,047

Table 3. Data on symptoms with comparative analysis between groups.

SYMPTOMS	T0			T1		
	Group1	Group 2	P	Group 1	Group 2	P
BLADDER						
No	17,4%	27,3%		90,4%	62,5%	
Yes	82,6%	72,7%	0,316	9,6%	37,5%	0,010
BOWEL						
No	68,1%	36,4%		86,5%	62,5%	
Yes	31,9%	63,6%	0,008	13,5%	37,5%	0,040
PELVIC/ VAGINA						
No	40,6%	63,6%		94,2%	100,0%	0,323
Yes	59,4%	36,4%	0,060	5,8%	0,0%	0,323

Table 4. Data on FSFI with comparative analysis between groups.

FSFI	T0			T1		
	GROUP 1	GROUP 2	P	GROUP 1	GROUP 2	P
DESIRE	3.07±1.20	2.40±1.21	0,023	3.67±1.16	3.23±1.00	0,054
EXCITEMENT	2.29±2.26	1.06±1.94	0,018	3.98±1.94	3.51±1.60	0,024
LUBRIFICATION	2.85±2.71	1.23±2.25	0,011	4.36±2.14	3.64±1.87	0,027
ORGASM	2.37±2.39	1.16±2.15	0,036	3.77±1.94	3.33±1.71	0,174
SATISFACTION	2.88±2.69	1.62±2.44	0,059	4.36±2.19	4.00±1.86	0,092
PAIN	2.88±2.79	1.35±2.49	0,022	4.53±2.22	4.73±2.01	0,975
TOTAL	16.33±13.05	8.82±11.84	0,009	18.95±14.22	19.93±11.14	0,497

Results

The incidence of OASIS in the studied period was 1.17%. Ninety-one women participated (G1 n=69 vs G2 n=22). Primiparity (p=0.03), epidural analgesia (p=0.041), use of a vacuum extractor (p=0.046), and greater newborn (NB) weight (p=0.002) were associated with a greater risk of OASIS.

The impact of OASIS lesions occurs not only on the pelvic floor, but also on women's quality of life, due to urinary and intestinal symptoms. UI was present in 17.6% of women with such injuries and intestinal symptoms in 59% after 3 months of birth. At T1, the incidence of UI was higher in group 2 (p=0.047), 2 women in each group presented AI. In the SF-36, an improvement in quality of life was observed in both groups over time and there was no difference when comparing the groups. In the FSFI, there was a worsening of sexuality in both groups between T0 and T1 (p<0.001). G2's sexuality worsened over time, except for desire (p=0.330). PFDI-20 values decreased over time, demonstrating a decrease in the impact of symptoms on women's daily lives. However, three months after birth, urinary and intestinal symptoms were worse compared to the control group. As for the PFIQ-7 questionnaire, it was observed that there was an improvement in quality of life related to symptoms until the third month after birth, in the control group, which was not observed in the OASIS group.

Table 5. Data on PFDI - 20 with comparative analysis between groups.

T0	T0			T1		
	Group 1	Group 2	P	Group 1	Group 2	P
POPDI - 6	13.85±16.99	10.12±15.11	0,236	0.32±1.39	0.00±0.00	0,329
CRADI - 8	3.97±7.61	5.95±7.57	0,064	0.97±3.20	6.45±11.62	0,014
UDI - 6	20.14±19.50	13.90±11.52	0,362	1.21±4.67	7.29±13.14	0,005
Total	37.96±37.79	29.97±26.91	0,518	1.88±5.81	12.22±21.39	0,006

Table 6. Data on PFIQ - 7 with comparative analysis between groups.

	T0			T1		
	Group 1	Group 2	p	Group 1	Group 2	p
UIQ - 7	6.90±12.47	7.70±10.89	0,483	0.82±4.39	6.24±19.09	0,049
CRAIQ - 7	0.88±6.34	0.00±0.00	0,436	0.82±4.78	1.78±5.17	0,208
POPIQ - 7	3.50±9.83	0.23±1.05	0,135	0.28±1.98	0.00±0.00	0,579
Total	11.28±19.47	7.93±10.77	0,975	1.45±6.44	7.13±20.39	0,035

Discussion

During the study period, the incidence rate of OASIS, in the evaluated hospital, was 1.17%, in line with that recommended by the WHO (<5%), as a predictor of the quality of obstetric care, and with national literature. Third and fourth degree injuries have an incidence in primiparous women that varies between 3.0 and 6.5%, with great variation in the literature, reaching 11% of all vaginal births. There are multiple risk factors potentially associated with the development of OASIS, among them we can highlight modifiable and non-modifiable, maternal and fetal/ delivery factors. Among the maternal factors we have nulliparity (increased risk by 4%), advanced age (> 35 years), race, obesity and vulvar-anal length of 4cm. the risk factors related to childbirth and the fetus for generating OASIS include macrosomia (weight > 4kg, responsible for a 2% increase in risk), the variety of presentation in the occipito-posterior region maintained (3% increase), shoulder dystocia (4%), the use of analgesia (2%), labor induction (2%), and instrumented delivery (7%).

The relationship between UI and obstetric variables has already been demonstrated in studies. New evidence demonstrates a greater risk of urge incontinence in young populations, with 60.1% reporting worsening bladder control after pregnancy, while Farrel et al demonstrated a rate of 22% after vaginal birth, and 33% after assisted vaginal birth. A recent study found a prevalence of stress UI in the first three months after birth of approximately 8% in primiparous women and approximately 20% for multiparous women.

OASIS lesions are considered a primary predisposing factor for AI, and even after their immediate correction, their prevalence reaches 53%, suggesting the importance of reducing the trauma associated with childbirth.

Conclusions

The present study traced the profile of women who had OASIS, and which ones had a physical and, mainly, psychological impact, in the long term, in a maternity hospital in northeastern Brazil. OASIS has been shown to be associated with pelvic pain, UI, and sexual dysfunctions. Although the risk factors are well studied, little is applied when deciding on the best route of delivery, paving the way for new studies to develop and improve risk calculators.

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