

Risk factors of acute stress disorder after emergency cesarian section in Mahajanga

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Abstract

Introduction: Emergency caesarean section is decided when vaginal delivery is not possible, in order to save the mother and her child. The objective of our study was to determine the risk factors for the occurrence of an acute stress disorder after an emergency cesarean section.

Methods: We conducted a descriptive and analytical prospective study over a period of 3 months from September to December 2020, at the Mother-Child Center of the Universitary Hospital Pzaga Androva Mahajanga, in Madagascar.

Results: The practice rate of caesarean section was 44.66% with a predominance of emergency caesarean section in 65% of cases compared to planned caesarean section (34.4%). These emergency caesareans were performed more in young parturients ($p=0.001$), nulliparous ($p=0.005$) and with a low level of education ($p=0.016$). The Acute Stress Disorder was found only and significantly in emergency caesareans in 15.3% of cases than planned caesareans with p -value=0.022 (OR=1.620 and CI: [1.365-1.923]). The history of a traumatic event ($p=0.004$) and the perception of a negative experience of the cesarean section ($p<0.001$) were the determining factors significantly associated with the occurrence of the Acute Stress Disorder after emergency cesarean section.

Conclusion: The urgency of the caesarean section would be a risk factor for acute stress disorder. A psychological intervention in the immediate postpartum would be an asset in the care of women undergoing caesarean emergency.

Keywords: Acute stress disorder; Emergency caesarian section; Risk factors; Post-partum; DSM-V.

1. Introduction

Natural or vaginal birth represents a happy event that allows a woman to fulfill her femininity by giving birth to a child [1]. However, this vaginal delivery may not be possible at the last minute and an emergency cesarean section is decided in order to save the mother and her child. Acute stress disorder (ASD) can then occur postpartum in these women

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undergoing emergency cesarean section. ASD is the harmful short-term psychological consequence, linked to trauma and a lot of stress [2,3]. It is a serious and non-negligible disorder, requiring special and urgent treatment because it can develop unfavorably towards a state of post-traumatic stress (after one month of the trauma), or even depression, desocialization, disorders mood, personality, psychosis, paranoia as well as death by suicide or infanticide [4,5]. However, in the case of Madagascar, the evaluation of this disorder is not a common practice in a hospital environment and is even neglected. And no study has yet been conducted on this subject in our region or even in our country. Thus, our objective was to determine the risk factors for the occurrence of acute postpartum stress in women undergoing emergency cesarean section.

2. Methods

We conducted a prospective descriptive and analytical study in the maternity ward of the Mother and Child Center of the Pzaga Androva University Hospital Center in Mahajanga in Madagascar, during a period of 3 months from September 2 to December 2, 2020. Our study population was made up of all women who gave birth by cesarean operation. We excluded women with a postpartum complication requiring resuscitation, whether the mother or the child, as well as the presence of congenital malformation and those who refused being interviewed or speaking neither the Malagasy nor French language. Thus, all full-term women who had undergone a cesarean section at 37 weeks of gestation at the time of the study were included and minor parturients were not included. The “exposed” population consisted of patients who had undergone an emergency cesarean section and “non-exposed” those who had a planned cesarean section, not linked to an emergency situation occurring outside of work and organized at a time that suited the patient, obstetric team and the patient. Ethical consideration was respected. Each patient received informed and signed consent, and the data was processed anonymously. We first carried out a pre-test with patients with the same profile in a private clinic in Mahajanga, then followed the collection of data from the Mother and Child Center. A data collection sheet was established with an assessment of the state of stress using the SASRQ or Stanford Acute Stress Reaction Questionnaire, translated into Malagasy, and which is widely used because it is applicable to all types of trauma. This questionnaire includes a first question assessing the experience of the event, the answer to which is between “not at all” and “extremely disturbing”. Followed by 30 questions with a possible answer, an intensity scale ranging from “0=never felt” to “5=very often felt”. These 30 questions Data analysis was carried out using SPSS software version 22.0.0.0. These 30 questions were grouped by the authors into five stress symptoms including: dissociation (10 items), reactivation (6 items), avoidance (6 items), anxiety and sleep disturbance (6 items). and depreciation (2 items). In its interpretation, each item is rated from 0 to 5. The presence of stress symptoms is defined by a response between “sometimes felt” and “very often felt” (score 3/5 to 5/5). The overall score ranges from 0 to 150, and acute stress is defined as a score greater than or equal to 75 out of 150 [6]. Sociodemographic and clinical parameters were studied, as well as the frequency of emergency and planned cesarean sections. The data were entered and processed using SPSS software version 22.0.0.0.

3. Results

During our study period, 138 patients had undergone a cesarean operation out of 309 deliveries, or 44.66% of cases. After applying the exclusion and non-inclusion criteria, we retained 90 patients in our study. Among these patients, 65.56% had undergone an emergency cesarean section and 34.44% had a planned cesarean section. In sociodemographic parameters, the average age of emergency cesarean patients was 28.02 with extreme ages of 18 and 42 years. That of patients undergoing planned cesarean section was 30.81 years, with a p value=0.001. According to their marital status, married women predominated as much among emergency cesareans (98.3%) as among planned cesareans (87.1%), with a p value = 0.027. According to their level of education, the secondary level predominated both among emergency Caesareans (40.7%) and among those scheduled (64.5%), with a p value = 0.016. In the clinical parameters, depending on the urgent nature of the cesarean section, the p value is less than 5% for the following variables: parity ($p=0.005$), previous mode of delivery with history of cesarean section ($p=0.008$), the average age of pregnancy ($p<0.001$), the history of hospitalization during pregnancy ($p=0.027$) and the psychological experience of the cesarean section ($p=0.018$) which found a predominance of extremely disturbing experiences in 25.4% of cases among emergency Caesareans. According to our study, after cesarean operation: 15.3% of women undergoing emergency cesarean section presented an ASD, and no ASD was observed in scheduled cesarean sections. [Figure 1].

According to the overall SASRQ score, the urgent nature of the cesarean section was significantly associated with the onset of ASD with a p value of less than 5% and a relative risk of 1.620 [1.365-1.923] [Table 1].

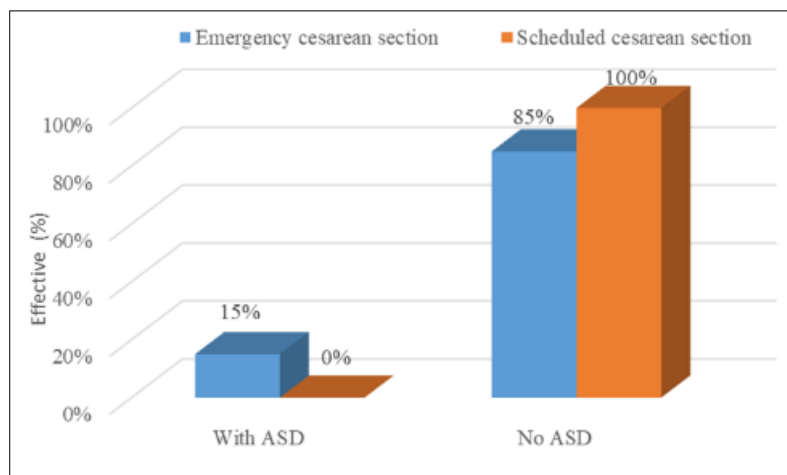


Figure 1 Distribution of cesarean patients according to the presence or absence of an ASD

Table 1 Association between the presence of ASD and cesarean section

	Cesarean sections (N=90) N(%)	Emergency cesarean section (N=59) N (%)	Scheduled Cesarean (N=31) N (%)	OR [IC à 95%]	p
Symptoms of ASD					
Dissociation (Score ≥ 25/50)	8(8.9)	8(13.6)	0(0.0)	1.61 [1.36-1.90]	0.032
Reactivation (score ≥15/30)	11(12.2)	11(18.6)	0(0.0)	1.65 [1.38-1.96]	0.01
Avoidance (score ≥15/30)	28(31.1)	23(39.0)	5(16.1)	3.32 [1.12-9.89]	0.026
Anxiety and sleep disorders (score ≥15/30)	22(24.4)	19(32.2)	3(9.7)	4.43 [1.20-16.43]	0.018
Depreciation (score ≥5/10)	12(13.3)	12(20.3)	0(0.0)	1.66 [1.39-1.99]	0.007
Presence of at least one sign of ASD					
	41(45.6)	34(57.6)	7(22.6)	4.66 [1.39-12.52]	0.002
Overall SASRQ score					
Presence of ASD (Score global ≥75/150)	9(10.0)	9(15.3)	0(0.0)	1.62 [1.36-1.92]	0.022

Among the factors associated with the occurrence of an ASD in emergency cesarean patients, none of the sociodemographic parameters were significantly associated with the occurrence of an ASD in emergency cesarean patients ($p > 5\%$) [Table 2].

Table 2 Distribution of sociodemographic characteristics of emergency Caesarean patients according to the onset of an ASD

Emergency cesarean patients	With ASD (N=9) N (%)	No ASD (N=50) N (%)	OR [IC à 95%]	p
Age (years):				
Average	27.44	26.4	2.11 [-3.17-5.26]	0.622
(Standard deviation)	6.167	5.761		
Marital status:				
In relationship :				
Yes	9 (100.0)	49 (98.0)	0.845[0.76-0.94]	0.669
No	0 (0.0)	1 (2.0)		
Level of education:				
Illeterate	1 (11.1)	3 (6.0)	1.96 [0.18-21.25]	0.574
Primary school	1 (11.1)	10 (20.0)	0.50 [0.56-4.47]	0.528
Secondary school	5 (55.6)	19 (38.0)	2.04 [0.49-8.55]	0.324
Universitary study	2 (22.2)	18 (36.0)	0.51 [0.09-2.71]	0.421
Professions:				
Job :				
Yes	4 (44.4)	23 (46.0)	0.94 [0.22-3.91]	0.931
No	5 (55.6)	27 (54.0)		
Medical profession:				
Yes	0 (0.0)	6 (12.0)	1.20 [1.07-1.36]	0.273
No	9 (100.0)	44 (88.0)		

In clinical parameters, the number of prenatal consultations performed was a significantly associated factor ($p=0.045$). Indeed, patients with acute stress had performed fewer prenatal consultation (mean of 4.44) than those without stress (mean of 6.28). [Table 3].

Table 3 Distribution of clinical parameters of emergency cesarean patients according to the onset of ASD

Emergency cesarean patients	With ASD (N =9) N (%)	No ASD (N=50) N (%)	OR [IC à 95%]	p
Parity:				
0	4(44.4)	24(48.8)	0.87[0.21-3.61]	0.844
≥1	5(55.6)	26(52.0)		
History of cesarean:				
Yes	1(20.0)	15(57.7)	0.18[0.02-1.88]	
Prenatal consultation follow_up				

Yes	8(88.9)	49(98.0)	0.16[0.01-2.88]	
No	1(11.1)	1(2.0)		0.164
Prenatal consultation carried out:				
Average	4.44	6.28	0.89[-3.63-0.04]	0.045
(Standard variation)	2.404	2.483		
Distribution				
<4 CPN	3(33.3)	6(12.0)	3.67[0.72-18.66]	
≥4 CPN	6(66.7)	44(88.0)		0.101
Pathology associated with pregnancy:				
Yes	1(11.1)	6(12.0)	0.92[0.10-8.67]	
No	8(88.9)	43(88.0)		0.816
Hospitalization during pregnancy:				
Yes	0(0.0)	1(2.0)		
No	9(100.0)	49(98.0)	1.18[1.06-1.32]	0.669
Gestational age (in weeks of amenorhea):				
Average	39.56	39.08		
(Standard variation)	-1.236	-1.639	0.57[-0.68-1.63]	0.412

The presence of a history of traumatic event was also a factor significantly associated with the occurrence of an ASD, with $p=0.004$ OR =7.68 [1.65-35.76], as well as the experience extremely disturbing cesarean section with $p<0.001$ OR=0.05 [0.01-0.31] [Table 4].

Table 4 Distribution of biographical characteristics of women undergoing emergency cesarean section according to the onset of an ASD

Emergency cesarean patients	With ASD (N=9) (%)	No ASD (N=50) (%)	OR [IC à 95%]	p
Explanation before surgery				
Yes	8(88.9)	48(96.0)	0.33[0.03-4.12]	0.371
No	1(11.1)	2(4.0)		
Psychological preparation and /or support				
Yes	9(100.0)	49(98.0)	0.87[0;16-487]	0.669
No	0(0.0)	1(2.0)		
Support from husband				
Oui	7(77.8)	40(8.0)	0.87[0.16-4.87]	0.879
Non	2(22.2)	10(20.0)		
History of stressful event				
Oui	5(55.6)	7(14.0)		0.004

Non	4(44.4)	43(86.0)	7.68[1.65-35.76]	
Cesarean section experience :				
Very/extremely disturbing	7(77.8)	8(16.0)	0.05[0.01-0.31]	< 0.001
Not/less/moderately disturbing	2(22.2)	42(84.0)		

4. Discussion

4.1. Impact of emergency cesarean

According to our study, a predominance of the emergency cesarean section rate (65.5%) was found compared to planned cesarean sections (34.4%). Our results match those of other studies at the regional level in 2009 in the mother and child center finding a rate of 74.37% compared to 25.63% of planned cesarean sections. But also at the national level, such as that carried out in a university hospital in Antananarivo with 73.73% of emergency cesareans compared to 26.26% of planned cesareans, or even other university hospitals in other regions of the island [7, 8, 9,10]. Which is also the case in other African countries such as Morocco [11]. However, our results differ from those of developing countries, such as Greece, finding rates of planned cesarean sections (60.6%) largely high compared to emergency cesareans (39.4%) in their annual practice. [12]. Our results could be explained by the fact that our study took place within a public reference center of last resort for the entire province of Mahajanga, where the cases that arrive are already serious and complicated after several detours to several "hands", and which require adequate urgent care. Thus, recycling both theoretical and practical knowledge of doctors and midwives on a regular and systematic basis via postgraduate teaching as well as awareness-raising through the media concerning childbirth and its modalities could help reduce these results. According to clinical parameters, regarding parity, a predominance of emergency cesarean sections was more marked among nulliparous women in 36.7% of cases. This is also consistent with the results of other studies [17, 12]. And the presence of a history of cesarean operation among multiparous women was also found among emergency cesarean sections in 66.7% of cases. This is also confirmed by the results of other recent studies [12, 13]. These parameters should be particularly taken into account in order to anticipate psychological preparation in the most gentle way possible for the parturient, for a possible cesarean section which could be decided urgently if the case proves necessary.

4.2. Association between sociodemographic characteristics in patients with emergency cesarean section and ASD

Regarding sociodemographic characteristics, no significant association was found between sociodemographic characteristics in emergency cesarean patient and ASD. We found similarities with other studies in African country [11, 13]. Our results may be due to the predominance of patients with level of education.

4.3. Evaluation of ASD among patients with emergency cesarean section versus scheduled cesarean

According to our study, there is a significant difference in terms of the presence of an ASD between the group of women undergoing emergency caesareus with a rate of 15.3% and the group of women with planned cesarean section who did not present this disorder (0%), with a 1.6 times higher risk of presenting an acute postpartum stress state if the cesarean section is decided urgently (OR =1.62 [1.356-1.923]. Indeed, the urgent nature of the cesarean section means that the parturient undergoes a state of extreme stress at the time of the announcement of the decision where normally she would react either by « fight » or « flight », but finds herself blocked and has no choice but to "let it happen". Thus, the processing of this information remains blocked in his emotional brain (amygdala) and will not be digested at the level of the cerebral cortex. Which means that elements of what had happened (image, sound, emotion, etc.) will come back to life, states of anxiety, etc., even after the cesarean section has passed, thus constituting the symptoms of ASD [18]. This has been found by several recent studies [19, 20].

4.4. Association between clinical parameters and ASD in patients with emergency cesarean section

Regarding the risk factors for acute stress, the history of a traumatic event is significantly associated with the appearance of acute stress after emergency cesarean section ($p = 0.004$, OR = 7.68 [1.65-35.76]). This means that these women have 7.68 times more risk of developing an ASD after an emergency cesarean section. Our results are consistent with those of other studies, where previous traumatic experiences and obstetric emergencies were identified among the risk factors for developing post-traumatic stress disorder after childbirth [21]. However, other authors would add

lack of support and dissociation as risk factors for the occurrence of acute stress postpartum after an emergency cesarean section [22]. Our results could be explained by the fact that the majority of our study population was married in their marital status (98.3%), and these women had good emotional and moral support from their family, a factor of resilience for the parturient. This would underline a particularity of Malagasy culture, where the large family is physically present and provides moral support at all moments of the lives of its members (birth, marriage, death, etc.) and these moments even represent an opportunity to get together in order to preserve and promote “fihavanana” or “social bond”, and that build resilience [23].

4.5. Association between biographical parameters and ASD in patients with emergency cesarean section

Among our results, the psychologically negative or traumatic experience of the cesarean section was significantly associated with the occurrence of an ASD after emergency cesarean section ($p=0.05$, $OR=0.05$ [0, 01-0.31]). This was also found in other studies [24]. According to this study in 2009, the risk factors generally associated with post-traumatic stress disorder include the woman's perception of the childbirth experience (pain, control and perceived social support), the psychological characteristics of the woman (history of trauma or psychological care) and medical characteristics (level of medicalization experienced during pregnancy and childbirth). All these factors should therefore be taken into account in order to prevent and alleviate the occurrence of ASD after emergency cesarean section; and therefore valid for all deliveries. Certainly, our study has its limits. Our results cannot be generalized because it was a study carried out in a single center. However, it allowed us to make a first observation of the risk factors for ASD in women after emergency cesarean section

5. Conclusion

Acute stress disorder is a reality occurring postpartum after emergency cesarean section. The significantly associated risk factors mainly include a history of stressful life events as well as the traumatic experience of the cesarean section reported by the parturient. One of our areas of action would already be to prevent this disorder by identifying these risk factors and to pay attention to psychologically preparing the parturient for the possibility of an emergency cesarean operation if necessary. The intricacy of emergency cesarean section and the psychological consequences reflect the need for multidisciplinary care. This study could constitute an advocacy for the beginning of collaboration between clinical psychologist and the public hospital.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest. Statement of ethical approval The present research work does not contain any studies performed on animals/humans subjects by any of the authors. Permission to conduct the study was obtained from Mother-Child Center of University hospital PZAGA Androva Mahajanga Madagascar.

Statement of informed consent

Informed consent was obtained from the patient included in the study and also with patients for the pretest. The patient information was been kept confidential during and after study period.

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