

Obesity: Anesthetic and Caesarean Procedure Complications in the Teaching Centers of Cotonou

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Abstract

Introduction: The morbidity townships of the obesity at the women are the complications of pregnancy, the dystocia, and the childbirths by caesarian procedure. This survey had for objective to determine the frequency of the obesity at the parturient, to value the impact of the obesity on the childbirth by caesarean and the complications postoperative immediate in the teaching hospitals of Cotonou.

Patients and method: We did a prospective, comparative and analytic survey of January 13 to April 13, 2012. Eight hundred ninety-one consecutive parturient having had a Caesarean was include. We studied the anesthetic techniques, the techniques of control of the aerial ways, the number of necessary tests for the tracheal intubation, the complications and aftercare of the first 48 hours. A comparison has been made according to the BMI. The obesity has been defined by a BMI ≥ 30 kg/m². The parturient has been classified in two groups: Non obese: BMI ≤ 30 kg/m², obese: BMI ≥ 30 .

Results: The obesity has been recovered at 286 parturient is 32.10%. There were 703 (78.90%) Caesareans in emergency and 188 (21.09%) programmed Caesareans. The obese parturient also required more frequently several lumbar punctures ($p < 0.001$) at the time of the spinal anesthesia and more of conversion of the spinal anesthesia into an anesthesia general ($p = 0.008$). The postoperative complications: laryngeal pain, back pain and suppuration of the wound were more frequent at the obese parturient.

Conclusion: The obesity is frequent at the parturient in Benin. The post-operative complications are more frequent after the Caesarean at the obese parturient.

Keywords: Obesity; Caesarean; Anesthesia; Complication; Benin

Introduction

According to a WHO's report, more than a third of the women and a quarter of the men in Africa are in overweight, and these proportions should increase to 41% and 30% respectively during the next ten years. The recent tendencies in the urbanization of the developing countries and the internationalization of the food market contribute to change the behavior of people and their style of life. The changes of lifestyle, bound to the nutrition, transition of the traditional to the modern habits, drove to the emergence of the overweight and the obesity [1,2]. A hospitable survey led to Cotonou returns a prevalence of overweight of 35.3% and the one of the obesity to 27.3% with a feminine predominance: 16.9% at the men vs. 36% at the women [3]. The morbidity townships of the obesity at the women are the complications of pregnancy, the dystocia, and the childbirths by caesarian procedure [4-6].

This survey had for objective to determine the frequency of the obesity at the parturient, to value the impact of the obesity on the childbirth by Caesarean and the complications postoperative immediate in the teaching hospitals of Cotonou.

Patient and method

Our survey took place in the service of anesthesia resuscitation, the operative blocks, to the intensive care, the delivery rooms, the services of hospitalization, the neonatology service of two academic motherhoods of Benin,. We did a prospective, comparative and analytic survey of January 13 to April 13, 2012. After the favorable opinion of the local ethics committee and the consent of the parturient. We collected the data by a standardized questionnaire. Eight hundred ninety-one consecutive parturient having had a Caesarean were include. We studied the anesthetic techniques, the techniques of control of the aerial ways, the number of necessary tests for the tracheal intubation, the complications and aftercare of the first 48 hours. A comparison has been made according to the BMI. The obesity

has been defined by a BMI ≥ 30 kg/m². The parturient has been classified in two groups: Non obese: BMI ≤ 30 kg/m², obese: BMI ≥ 30 . The obese have been classified in 4 groups: moderate obesity: BMI between 30 and 35 kg/m²; stern obesity: BMI splices 35 and 40 kg/m²; morbid obesity: BMI ≥ 40 kg/m²; terrific obese: BMI ≥ 50 kg/m². The primary criteria of judgment were the prevalence of the obesity, the choice of the anesthetic technique and the difficulties bound to the anesthetic technique. The secondary judgment criteria were the intervening of a complication perioperative.

The collected data have been seized with the help of the software SPSS 18 and have been analyzed with the software Epi-Info 3.3.2. The qualitative variables have been described while using the percentages and their interval of confidence. The quantitative variables have been described while using the average and the gap marks. The comparisons

of frequency have been made with the help of the test of Chi Square and the comparisons of average with the test of Student. A p been worth lower or equal to 0.05 has been considered like statistically meaningful.

Results

The obesity has been recovered at 286 parturient is 32.10%. Among the 286 obese, 57.69% (165) had an obesity moderates; 28.32% (81) had a stern obesity, 13% (37) had a morbid obesity and 1.04% (3) were terrific obese. The obese parturient had a more elevated middle gravidity to 3.03 and a more elevated middle parity to 1.56. The high BP, OSAS and the burrs were the co-morbidities the more frequently recovered at the obese parturient (Table 1).

	BMI < 30		BMI ≥ 30		p
Effective total	605	(67.90%)	286	(32.10%)	-
Age <18	11	1.82%	1	0.35%	0.063
18-45	593	98.02%	283	98.95%	0.237
>45	1	0.17%	2	0.7%	0.243
Mean Gravidity	2.66 \pm 1.588	-	3.03 \pm 1.803	-	-
Mean Parity Co-morbidity	1.28 \pm 1.422	-	1.56 \pm 1.653	-	-
Arterial Hypertension	108	17.85%	76	26.57%	0.002
Diabetes	8	1.32%	2	0.70%	0.328
Asthma	19	3.14%	14	4.90%	0.135
Snoring	106	17.52%	104	36.36%	<0.001
OSAS	18	2.98	44	15.38%	<0.001
Cardiopathy	6	0.99%	7	2.45%	0.085
Other	81	13.39	30	10.49%	0.132
OSAS : Obstructive sleep apnea syndrome					

Table 1: Distribution according to BMI and characteristics of women in labor.

There were 703 (78.90%) Caesareans in emergency and 188 (21.09%) programmed Caesareans. The Caesarean was programmed more frequently at the obese parturient ($p=0.003$). Did not have a meaningful difference in the indications according to the BMI. The indications of the Caesarean were the uterine scars, the acute fetal distress and the pre-eclampsia. There was not a difference between the indications in the two groups.

The spinal anesthesia and the general anesthesia were practiced with the same frequency at the obese parturient as non-obese (Table 2). The

obese parturient had a score of Mallampati more frequently therefore superior to 2 were more susceptible to present some difficulties the intubation. These parturient required several laryngoscopies more frequently before the intubation (Table 3). The obese parturient also required more frequently several lumbar punctures ($p<0.001$) at the time of the spinal anesthesia and more of conversion of the spinal anesthesia into an anesthesia general $p=0.008$ (Table 3).

	BMI < 30 kg/m ²		BMI ≥ 30 kg/m ²		p
Type of caesarian					
Emergency	494	81.65%	209	73.08%	0.003
Scheduled	111	18.35%	77	26.92%	0.003

Indications					
Dystocia	168	27.77%	76	26.57%	0.386
Preeclampsia	91	15.04%	56	19.58%	0.055
Eclampticcrisis	48	7.93%	16	5.59%	0.13
Uterinescar	151	24.96%	78	27.27%	0.255
PP	31	5.12%	20	6.99%	0.281
Placenta hematoma	18	2.98%	6	2.18%	0.304
UR	35	5.79%	11	3.85%	0.144
Acute fetaldistress	171	28.26%	68	23.78%	0.091
Prophylactic	50	8.26%	26	9.09%	0.384
Foetalemacrosomia	4	0.66%	6	2.10%	0.064
Other	14	2.31%	6	2.10%	0.445

Table 2: Distribution of women in labor according to BMI, type of caesarian and indication.

	BMI<30		BMI ≥ 30		P
Spinal anesthesia	486	80.33%	234	81.82%	0.334
Multiple lumbar punction	290	47.93%	192	67.13%	<0.001
Failure to lumbar punction	0	0.00%	3	1.05%	0.033
Severe low blood pressure	118	19.50%	57	19.93%	0.474
Reconversion in general anesthesia	13	2.15%	16	5.59%	0.008
General anesthesia	119	19.67%	52	18.18%	0.334
Mallampati 1	311	51.40%	61	21.30%	<0.001
Mallampati 2	183	30.20%		36.4%	0.041
Mallampati 3	78	12.90%		28.00%	<0.001
Mallampati 4	33	5.50%		14.30%	<0.001
Multiple laryngoscopy	43	7.11%	36	12.59%	0.006
Failure to intubation	6	0.99%	4	1.40%	0.407
Laryngospasm	1	0.17%	0	0.00%	0.313
Hypoxia	77	12.73%	41	14.34%	0.287
Bronchial inhalation	0	0.00%	1	0.35%	0.321
Cardiacarrest	1	0.17%	0	0.00%	0.679
Pulmonarydistress	2	0.33%	2	0.70%	0.385
Lateawakening	5	0.83%	5	1.75%	0.385

Table 3: Distribution of women in labor according to BMI, type of anesthesia and complications.

The postoperative complications: laryngeal pain, back pain and suppuration of the wound were more frequent at the obese parturient (Table 4). All other complications (stern hypotension, failure of intubation, laryngospasm, hypoxia, inhalation, cardiac stop, belated

wakening, respiratory distress, postoperative headache, postoperative nauseas and vomiting, cough, neck pain, thrills) didn't depend of the BMI. The only case of death by cardiac arrest noted in postoperative

was due to anemia bound to sickle cell disease of death ago post-operative.

	BMI <30		BMI ≥ 30		P
Postoperative headaches	66	10.91%	38	13.29%	0.178
Postoperative nausea and vomiting	88	14.55%	52	18.18%	0.099
Laryngeal pain	28	4.63%	22	7.69%	0.047
Cough	6	0.99%	1	0.35%	0.286
Neck pain	6	0.99%	4	1.40%	0.407
Chills	24	3.97%	13	4.55%	0.404
Lumbar pain	11	1.82%	12	4.20%	0.034
Suppurating wound	0	0.00%	6	2.10%	0.001

Table 4: Distribution of women in labor according to BMI and immediate post-operative complications.

Discussion

This survey permitted to determine the prevalence of the obesity at the parturient that benefitted from the Caesarean in the academic hospitals of Cotonou and to determine the impact of the obesity on the complications of the Caesarean.

The prevalence of the obesity at these parturient was of 32.10%. It was superior to the 10.73% of the general population in the Benin [7]. Although the WHO defined the obesity for a BMI ≥ 30 kg/m²; at the parturient it is necessary to take account of the supplementary weight contained in the uterus, of the Sodium retention and the supplementary greasy mass of due to the pregnancy. The obesity would be defined then at the parturient for a BMI ≥ 35 kg/m² [8]. The prevalence of the obesity at the parturient would be then of 24.80%. It remained superior to the 14.52% recovered in the urban population by Gary et al. [7].

Our survey was only carried on the parturient having benefitted a Caesarean and no on the set of the parturient. We could not define the frequency of Caesarean among the obese parturient in relation to the non-obese parturient. The obesity at the parturient is associated to affections as: the arterial hypertension, the diabetes, the asthma, the pre-eclampsia and the OSAS [9]. In our survey this association was meaningful for the arterial hypertension, the nocturnal burrs and the OSAS. At the obese pregnant women, the OSAS is even more frequent and the episodes of arterial desaturation in oxygen that can occur during the syndrome of apnea of the sleep are a threat for the mother and the fetus [10].

Many changes led by pregnancy are added to those of the obesity to drive to functional changes, a reduction of the physiological reserve and finally to an increased anesthetic and obstetric risk [11]. The edema of the aerial ways, the greasy deposits to the level of the soft cloths of the aerial ways, the short neck and the volume of the breasts contribute to the difficulty of the intubation. The obese parturient had a score of Mallampati more 3 and 4 in relation to the non-obese parturient. The difficulty of intubation has been observed at 12.59% of the parturient obese vs. 7.11% at the non-obese parturient. The impact of the failures of the intubation is the order of 1/280 at the parturient against 1/2230 in the general population of the patients operated [12-14]. The failure of the intubation was observed at 1.40% of the

parturient obese vs. 0.99% of the non-obese parturient. The spinal anesthesia is recommended therefore especially at the obese parturient [15]. The spinal anesthesia was preferentially the technique the more used (80.80%) for the Caesarean in our survey as well at the obese parturient that non obese. This technique associated the bupivacaine to the fentanyl and/or to morphine. The difficulty of the lumbar puncture was more frequent (67.13% vs. 47.93% of multiple puncture) at the obese parturient. This tendency has been returned by Vricella et al. [9].

The laryngeal pains were more frequent at the obese that the non-obese. It explains itself comfortably by the number more raised of laryngoscopy. In the same way, there was more back pain at the obese that the non-obese. This result is only a consequence of the multiple lumbar punctures. The suppuration of the operative wound was observed solely at the obese parturient. What joins the observations of Lebuffe et al. [16]. The thickness of the adipose tissue plays an important role in the intervening of this complication. The adipose tissue is hypo perfused what makes hypoxic the sub-cutaneous tissue at the obese and delay the skinning.

Conclusion

The obesity is frequent at the parturient in Benin; the intricate pathophysiological modification of the obesity to the physiological modifications of pregnancy accentuates the difficulties of realization of the tracheal intubation and the spinal anesthesia. The post-operative complications are more frequent after the Caesarean at the obese parturient.

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