Epidemiological and Prognostic Aspects of the Trauma during Pregnancy at the University Teaching Hospital Bogodogo (UTH-B) of Ouagadougou, Burkina Faso

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Abstract

Objectives: To study the epidemiological and prognostic aspects of trauma during pregnancy at the University Teaching Hospital Bogodogo (UTH-B) of Ouagadougou, Burkina Faso.

Patients and Methods: This was a descriptive retrospective study over a 2 year period from January 1, 2015 to December 31, 2017. Included in our sample were all pregnant women admitted for trauma during pregnancy in the department of gynecology and obstetric in the University Teaching Hospital Bogodogo of Ouagadougou.

Results: We recorded 112 emergency consultations for trauma and pregnancy out of a total of 13,367 gynecological consultations, or a frequency of 0.9%. The average age of our patients was 25.9 ± 5 years and the average parity was 3 with extremes of 0 and 8. Housewives accounted for 50% of patients and evacuation was the mode of admission in 74.6%. The etiologies of trauma were dominated by road accidents in 82.6% of cases, falls in 9.8% of cases and brawls in 7.6% of cases. The mean gestational age of onset of trauma was 26.3 ± 7. A notion of polytrauma was found in 4 patients. The fetal prognosis was marked in the 1st quarter by 3 cases of abortion, in the 2nd quarter by 5 cases of intrauterine fetal death and in the 3rd quarter by 10 cases of threatened premature delivery.

Conclusion: Trauma during pregnancy is frequent in the UTH-B. The implementation of a national prevention strategy for this association will improve the prognosis of mothers and children.

Keywords: Trauma and pregnancy; Ouagadougou; Prognosis; UTH-B

Introduction

According to WHO, 6%-7% of pregnant women consult for physical trauma, which is the leading cause of death not related to pregnancy [1]. The consequence of these traumas varies according to the age of the pregnancy and their mechanism of occurrence [2-6]. The management of a traumatized pregnant woman is delicate and must be multidisciplinary, including obstetricians, resuscitators, surgeons and pediatricians [4,5,7].

In Burkina Faso, there is an increasing number of cars [8]. For socio-economic and cultural reasons, women in general and pregnant women in particular are obliged to use these means of transport because of the lack of public transport such as underground or buses. Also they are often victim of falls of the top of tree or ornaments at the time of farming in rural area medium because in our society, the woman is the valid arm and the pillar of the family. She has to fight to provide food for the children at the expense, often, of her personal health [9]. Also through this work, we propose to describe the epidemiological and prognostic particularities of these traumas during pregnancy at University Hospital Bogodogo of Ouagadougou which is a new reference hospital in Burkina Faso.

Patients and Methods

This was a descriptive retrospective study from January 01, 2010 to December 31, 2012. The study was conducted within the obstetrical gynecology departments of University Teaching Hospital Bogodogo (UTH-B). Included in our study were all pregnant women admitted during the study period. Those who refused (3 patients) to give their consent to participate in our study were excluded from the final sample. The oral informed consent of the gestants was obtained prior to the start of this investigation. Study variables included socio-demographic characteristics, type of pregnancy trauma, mechanism of onset and prognostic data. A structured and individual collection sheet was used to collect the data. The data collected were entered on a microcomputer and then analyzed by the EPI DATA 3.1 and SPSS software. We got the approval of the Ethics Committee on Research.

Results

Frequency

During the study period, we recorded 112 admissions to gynecological-obstetrical emergencies for trauma on pregnancy out of a total of 13367 admissions, i.e. a frequency of 0.9%.

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Received: October 07, 2018; Accepted: November 15, 2018; Published: November 22, 2018

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Sociodemographic characteristics

Age: The average age of the patients was 25.9 ± 5 years with extremes of 17 and 42 years. The 20-24 age group was the most represented with 35.3% of cases.

Socio professional status: Housewives represented 50% of the sample, pupils and students 18.3%, employees 13.4%, the informal sector 10.3% and seamstresses and hairdressers 8%.

Marital status: Married women accounted for 62% of patients, cohabiting women for 25% and single women for 13%.

Geographical origin: Among the patients 105 (93.3%) lived in urban areas and 7% or 6.7% lived in rural areas.

Obstetrical history: The average number of pregnancies was 4 with extremes of 1 and 9 pregnancies. The average parity was 3 with extremes of 0 and 8.

Clinical aspects

Mode of admission: Patients were evacuated in 74.6% of cases, referred in 11.6% of cases and self-referred in 13.8% of cases.

Means of evacuation: Patients were evacuated by the national fire brigade in 89.9% of cases, by an ambulance in 7.3% of cases and by a personal vehicle in 2.8% of cases.

Reason for admission: The distribution of patients by reason for admission has been presented in Table 1.

Age of pregnancy: The mean gestational age at trauma onset was 26.3 ± 7.7 weeks Amenorrhea (AS) with extremes of 8 and 40.6 AS. Trauma patients in the first quarter accounted for 12.5%, those in the second quarter accounted for 45.1% and those in the third quarter accounted for 42.4%.

Circumstances of the trauma: The distribution of patients according to the circumstances of the trauma was presented in Table 2.

Type of trauma: The distribution of patients according to the type of trauma was shown in Table 3.

<table>
<thead>
<tr>
<th>Type of Trauma</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal contusion without visceral lesions</td>
<td>40</td>
<td>35.7</td>
</tr>
<tr>
<td>Trauma of limbs</td>
<td>33</td>
<td>29.5</td>
</tr>
<tr>
<td>Head injury</td>
<td>15</td>
<td>13.4</td>
</tr>
<tr>
<td>Pelvic trauma</td>
<td>8</td>
<td>7.1</td>
</tr>
<tr>
<td>Maxillofacial trauma</td>
<td>7</td>
<td>6.3</td>
</tr>
<tr>
<td>Spinal Trauma</td>
<td>6</td>
<td>5.4</td>
</tr>
<tr>
<td>Chest trauma</td>
<td>3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Table 3: Distribution of patients according to the type of trauma.

<table>
<thead>
<tr>
<th>Type of Trauma</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling from the top of a tree</td>
<td>4</td>
<td>3.6</td>
</tr>
<tr>
<td>Fall from its height</td>
<td>7</td>
<td>6.2</td>
</tr>
<tr>
<td>Assault</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>Rix</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Road accident</td>
<td>92</td>
<td>82.1</td>
</tr>
</tbody>
</table>

Table 2: Distribution of patients according to the circumstance of trauma (n=224).

Prognostic aspects

Maternal prognosis: The trend was favorable in 97.8% of cases. We noted 2 cases of polytrauma and 1 case of uterine rupture with hemorrhagic shock. Among the patients discharged with a progressive pregnancy, the 21 patients we were able to contact carried their pregnancies to term. No maternal deaths were reported.

Fetal prognosis: The distribution of obstetric complications according to the term of pregnancy has been shown in Table 4.

<table>
<thead>
<tr>
<th>Obstetrical Consequences</th>
<th>1st Trimester</th>
<th>2nd Trimester</th>
<th>3rd Trimester</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat of premature delivery</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Threat of premature delivery</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Intra-Uterine fetal death</td>
<td>-</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Abortion</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Threat of premature delivery</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Uterine rupture</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 4: Obstetrical complications according to the term of pregnancy.
Kouame in Cote d'Ivoire, which reported 0.3% and 0.02% respectively [10,11]. However, they are lower than those of Mangara and Traore in Mali, which reported 1.68% and 1.90% respectively [12,13]. The frequency of trauma during pregnancy is increasing. This increase could be linked to several factors, including the increase in the number of two-wheeled vehicles and car fleets and the low economic status of women in poor countries.

Type of maternal lesions

We’ve recorded 13% cases of head trauma. Namoano, Traore and Schiff recorded 12%, 3.3% and 1.7% of head injury cases, respectively [11,13,14]. Head injuries observed during AVPs are a major cause of morbidity and lead to special management in polyvalent resuscitation.

With regard to pelvic trauma, we noted 1.8% of pelvic fracture cases. Namoano reported 5.2%, Traore 6.6% and Schiff 1.7% [11,13,14]. In pelvic fractures, the risk of fetal damage is great if the presentation is cephalic and fixed. Low birth in the case of an undisplaced fracture of the pelvis is not an absolute indication [15]. However, we agree with Bowdler that in cases of serious fetal injury, it would be dangerous to subject the fetus to the vaginal birth test. However, in case of a fracture with large displacement, bladder and urethral lesions should be sought [15]. In these cases, also the lower track is contraindicated.

In connection with abdominal traumas we recorded 35.3% of cases in our series. Namoano reported 32.8%, Traore 13.2%, Kouame 14.3% and Schiff 4.4% [10,11,13,14]. Abdominal bruising has been observed mainly during AVPs involving both wheels and during brawls. Their maternal and fetal complications can be numerous and their severity depends primarily on the mechanism of trauma. According to some authors, the Kleihauer test should be used for all abdominal trauma in pregnant women, however other authors recommend it only in cases of violent abdominal trauma [1]. The Kleihauer test is essential for the proper management of any pregnant woman who has had abdominal trauma to detect fetal-maternal hemorrhage that may be responsible for fetal ischemic and hypoxic lesions and periventricular leukomalacia [16].

Obstetrical complications

In our series we noted 4% of cases of placental abruption. Schiff and Traore reported 10.5% and 6.8% respectively [14,13]. According to Occelli, 1% of placental abruption with hemorrhages, are of traumatic origin and are responsible for 50% of fetal mortality in serious road accidents. Retroplicental hematoma is a result of stretching or injury of the placental disc following trauma to the pregnant uterus. Tocometric recording and ultrasound must be repeated regularly for 48 h following a serious trauma because detachments can appear slowly, sometimes taking several days to form.

With regard to abortions, we noted 1.8% of abortions. Our results are close to those of Namoano and Connolly which found respectively 1.7% and 1.58% [11,17]. According to Thoulon most reported post-traumatic abortions are often reported after violent shocks with pelvic trauma [15]. The role of stress following shock is discussed in the literature, due to the oxytocic role of catecholamines released but adrenaline levels must be much higher than physiological levels to obtain this contractile action.

For the threat of premature delivery, we recorded 5.4% of cases in our series. Namoano, Kouame and Schiff, recorded respectively 44.8%, 28.6% and 9.5% of cases of threatened preterm birth [10,11,14]. Several pathogenic factors secondary to the shock may be retained: Premature rupture of the membranes, uterine contractions linked either to direct trauma of the uterus, stress, anoxia or direct uterine irritation during laparotomy.

For fetal death we recorded 4.5% cases in our series. Our result is higher than those of Namoano, Kouame and Connolly, which reported respectively 1.7%, 1.4% and 2.9% [10,11,17]. Several etiological factors are cited in the literature. These are retroplacental hematoma, massive fetal-maternal transfusion, uterine rupture, fetal trauma, maternal death. Maternal hemorrhagic shock can lead directly to acute fetal suffering with death in utero.

Maternal prognosis

In our series, we did not note any maternal deaths. Kouame, Namoano, Traore, Aitokallio reported 1.7% respectively [10,11,13]. 6.6% and 2.8% of maternal deaths. The morbidity and mortality related to trauma are not negligible. To further improve maternal prognosis in our context, rigorous monitoring and early, appropriate and multidisciplinary care are essential.

Fetal prognosis

In our series, we noted 10 cases of fetal in utero death and five cases of abortion. Namoano reported one case of intrauterine fetal death and one case of abortion [11]. Traore reported a favorable fetal prognosis in 73% and found 20 cases of intrauterine fetal death and 21 cases of abortion [13]. Kouame noted a favorable fetal prognosis in only 57.1% of cases [10]. The fetal prognosis is quite favorable in all studies, but fetal death in utero remains the most frequently cited complication [18]. For Weiss, in the aftermath of trauma, fetal mortality is 9 times higher than maternal mortality and represents about 0.5% of fetal deaths [19-21]. Generally speaking, the vital prognosis of the mother and fetus has improved since the introduction of the safety belt. All clinical studies have shown its effectiveness on maternal morbidity and mortality [22].

Conclusion

After studying epidemiological and prognostic aspects it can be concluded that trauma during pregnancy is relatively frequent at Ouagadougou UTH-B. The implementation of a national prevention strategy for this association will improve the prognosis of mothers and children. All clinical studies have shown the effectiveness on maternal morbidity and mortality.

References


