

Outcomes of Trauma during Pregnancy in Hail City - Saudi Arabia

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Abstract

Aim: To identify causes of trauma in pregnancy and its outcomes over mother and fetus.
Methodology: A cross-sectional study was conducted in Hail City that involved 830 pregnant women from 2010 to 2015. By using a convenience sampling method 830 pregnant women in Hail city in the KSA who are 18 to 45 years of age were involved in this study. Data were collected by a paper-based questionnaire and internet-based survey. **Results:** Traumatized women during pregnancy were 336 (40.5%) of 830 pregnant women involved (SD = 1.8, SE = 0.10038, Mean = 2.6071), and there were 218 (64.9%) got living births, while 118 (35.1%) their babies died. Many causes of trauma like falling and sliding 41.4%, carrying heavy load 21.9%, motor vehicle crashes 11.1%, diseases 10.4%, domestic violence 4.5% and other 9.8%. **Conclusion:** Falling and sliding women during pregnancy are the most common cause of trauma followed by carrying heavy loads, motor vehicle crashes, diseases, and domestic violence, that associated with fetal birth defect or death.

Keywords : *Pregnancy, trauma, Hail city, outcomes, Saudi Arabia*

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1. Introduction

Most of the causes of maternal mortality and morbidity during pregnancy in the past due to lack of care during pregnancy and assistance during childbirth were inadequate. At present maternal mortality very significantly decreased and that the most important reasons are caused by trauma [1-3]. Many studies have reported that the most common etiologies of trauma injuries in pregnancy include transportation crashes, falls, domestic abuse and assaults, puncture wounds and burn injuries [3,4]. Trauma in pregnancy is currently a leading cause of non-pregnancy-related maternal death, and maternal death remains the most common cause of fetal demise [5]. The effect of trauma on pregnancy depends on gestational age, intensity of maternal-fetal aggression (severity of both maternal and fetal injury) and type and severity of the injury [6].

The Saudi Arabian Ministry of Health in 2006, reported that accidents were the third most common cause of death among all groups (18.3% of all deaths) [7]. While the 2009 WHO health statistics report that maternal mortality ratio in Saudi Arabia was 18 per 100 000, comparable to that of developed countries [8].

In the northern province of Saudi Arabia, Hail it was reported that the number of accidents was 9501 in 2013. The accident-injury rate per 10,000 accidents was 16.22 and accident-death rate per 100,000 accidents was 41.02 respectively [9]. With such accident rates, the ability to predict adverse outcomes for both the mother and fetus is an important goal in pregnancies where there is trauma, particularly

since the frequency and onset of adverse outcomes are uncertain. The aim of this research was to identify causes of trauma in pregnancy and its outcomes over mother and fetus.

2. Subjects and Methods

2.1. Study Design

A cross-sectional descriptive study.

2.2. Study Population

Pregnant women in Hail city in the KSA who are 18 to 45 years of age.

2.3. Sample and Sampling

A convenience sampling involved 830 women who had trauma in their pregnancies.).

2.3. Data collection and analysis

Data were collected by a paper-based questionnaire and internet-based survey. SPSS version 21 was used for data entry and analysis.

2.4. Ethical consideration

Permission was obtained from the faculty of medicine through the dean of medicine before the beginning of the study. All participants signed the consent form attached with questionnaire and within first windows appeared on the online survey.

3. Results and discussion

Results of the current study revealed traumatized women during pregnancy were 336 (40.5%) of 830 pregnant women involved (SD = 1.8, SE = 0.10038, Mean = 2.6071), and there were 218 (64.9%) got living births, while 118 (35.1%) their babies were died. This accords with many studies that considered traumatic injury during pregnancy as a significant contributor to maternal and fetal morbidity and mortality [6,10,11].

Figure 1. shows the situation of living births after getting trauma during pregnancy, about 77.5% of them did not suffered from any complications, 34% had bleeding without birth defect, 5.04% got premature birth, and 1.8% had babies with birth defects. These results agree with study of Mahoney, trauma caused by accidents and violence is a common and important complication of pregnancy, involving 5-20% of pregnancies. Trauma is the leading cause of maternal death, accounting for up to 46% of cases [12]. Direct fetal injury is relatively uncommon because the maternal soft tissues, uterus, placenta, and amniotic fluid all tend to absorb and distribute the energy of the blow [13].

Taha and others found that the most common complication of trauma during pregnancy was preterm labor, which occurred in 28% of cases involved in their study especially when the traumatic insult happened before 37 weeks' gestation [14]. Our study results related to birth defect after traumas, agrees with study involved 62 women who were hospitalized for car accidents in the first trimester which found only 1 baby with a birth defect [15].

Figure 1: Situation of living births after Maternal Trauma in Pregnancy



There were several causes of trauma in pregnancy as shown in Table 1, the major cause was falling and sliding that represented 139 (41.4%) of total traumas, followed by trauma caused by carrying heavy loads that was 77 (22.9%), motor vehicle crashes represented 37 (11.01%) of traumas, where diseases like hypertension, diabetes mellitus, cardiac diseases, rheumatic diseases and psychiatric disorders represented 35 (10.4%) of traumas, about 15 (4.5%) of cases faced domestic violence, and there were other causes that represented 33 (9.8%) like animal's accident, and sudden abortion with unknown cause. Falls are the cause in 3% to 31% of cases of maternal trauma.69,123 Less than 10% of falls are associated with significant maternal or fetal complications [16]. They are more common in the latter half of pregnancy, particularly after 32 weeks [17]. Falling may cause traumatic placental injury can result in Maternal-fetal Hemorrhage (MFH) that occurs in 10% to 30% of pregnant trauma patients [18]. Regarding to different causes of trauma in pregnancy, study conducted by Zangene and others [19], showed the most common causes of maternal and fetal injuries were motor vehicle accidents, falling, fighting with husband and maternal stab wound and other traumas (insect bite, explosion, and pollution), and these findings agree with results of the current study.

Cause Outcome	Falling & Sliding N (%)	Carrying heavy load N (%)	Motor vehicle crashes N (%)	Diseases N (%)	Domestic violence N (%)	Others N (%)
Fetal Death	16 (11.5%)	39 (50.6%)	12 (32.4%)	21 (60%)	4 (26.7%)	26 (78.8%)
Nothing	108 (77.7%)	21 (27.3%)	20 (54.1%)	11 (31.4%)	6 (40%)	3 (9.1%)
Maternal Bleeding	12 (8.6%)	14 (18.2%)	4 (10.8%)	0 (0%)	3 (20%)	1 (3%)
Premature birth	3 (2.2%)	3 (3.9%)	1 (2.7%)	1 (2.9%)	2 (13.3%)	1 (3%)
Birth defect	0 (0%)	0 (0%)	0 (0%)	2 (5.7%)	0 (0%)	2 (6.1%)
Total (%)	139 (41.4%)	77 (22.9%)	37 (11.01%)	35 (10.4%)	15 (4.5%)	33 (9.8%)

Table 1. Maternal and Fetal Outcomes of Trauma in Pregnancy

4. Conclusion & Recommendations

4.1 Conclusion

Considering the current findings and similar reports, trauma during pregnancy can be a leading cause in maternal, fetal injury, and death. The most common injury was due to falling & sliding, carrying heavy loads, motor vehicle crashes, diseases, and domestic violence respectively

4.2 Recommendations

Despite advances in trauma management, the fetal and maternal mortality rates after traumatic injury have not declined. Because current management does little to affect mortality, prevention is the key to increasing maternal and fetal survival, so safety measures should be taken into account by expanding knowledge through community education programs.

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