

Insights on obstetric outcomes in pregnant individuals with Marfan Syndrome: evidence from the National Inpatient Sample

Saeed Baradwan¹, Majed Saeed Alshahrani², Ahmed Abu-Zaid³

¹ Department of Obstetrics and Gynecology, King Faisal Specialist Hospital and Research Center, Jeddah, Saudi Arabia.
² Department of Obstetrics and Gynecology, Faculty of Medicine, Najran University, Najran, Saudi Arabia.
³ Department of Obstetrics and Gynecology, College of Medicine, Alfaisal University, Riyadh, Saudi Arabia.

Background

Marfan syndrome (MFS) is a rare genetic disorder that affects the connective tissues throughout the body, including the aorta, eyes, and skeletal system. it is caused by mutations in the FBN1 gene, which encodes fibrillin-1, a key protein in the extracellular matrix. MFS may present with a wide range of symptoms, including tall stature, scoliosis, joint laxity, lens dislocation, aortic aneurysm, and mitral valve prolapse.

Pregnant women with MFS are at an increased risk of aortic dissection and a wide array of obstetric complications, which collectively can result in adverse maternal and fetal outcomes. the use of the National inpatient sample (NIS) database has the potential to provide insights into the epidemiology of obstetric complications in MFS pregnancies and inform clinical practice guidelines for managing these high-risk pregnancies.

Objectives

The aim of our study was to to investigate the potential association between MFS and adverse obstetric outcomes, using the extensive NIS database.

Methods

We utilized the international classification of diseases (ICD-10) system to identify relevant codes and extracted data from the NIS database covering the period 2016-2019.

descriptive statistics and χ^2 tests were employed to summarize and compare baseline characteristics. Univariate and multivariate regression analyses (adjusted for age, race, hospital region, smoking status, and alcohol misuse) were conducted to evaluate association between MFS and adverse obstetric outcomes. the regression analyses were summarized as Odds ratios (OR) with 95% confidence intervals (CI).

Results

among the 2,854,149 pregnant individuals, 179 had MFs. baseline characteristics revealed significant associations between MFs and age, race, and hospital location.

Table 1. Univariate analysis of adverse pregnancy outcomes in pregnant patients with and without Marfan Syndrome.

Obstetric outcome	OR	lower 95% CI	Upper 95% CI	P value
Multiple gestation	1.62	0.67	3.94	0.287
amniotic fluid and membrane abnormalities	1.64	1.01	2.68	0.045
Premature rupture of membrane	0.92	0.53	1.59	0.77
Placenta previa	1.68	0.42	6.75	0.468
Placental abruption	1.02	0.25	4.09	0.981
Postpartum hemorrhage	3.73	2.41	5.78	<0.001
Preterm labor	1.64	0.93	2.88	0.087
Gestational diabetes	0.53	0.27	1.04	0.065
Preeclampsia	0.54	0.22	1.31	0.173

Table 1 summarizes the univariate analysis of adverse pregnancy outcomes in MFS which revealed that individuals with this condition had significantly increased risks of amniotic fluid abnormalities (OR=1.64, 95% CI: 1.01-2.68, P=0.045) and postpartum hemorrhage (OR=3.73, 95% CI: 2.41-5.78, P<0.001).

Table 2. Multivariate analysis of adverse pregnancy outcomes in pregnant patients with and without Marfan Syndrome.

Obstetric outcome	Adjusted OR	lower 95% CI	Upper 95% CI	P value
Multiple gestation	1.63	0.67	3.97	0.283
amniotic fluid and membrane abnormalities	1.68	1.03	2.74	0.037
Premature rupture of membrane	0.92	0.53	1.59	0.763
Placenta previa	1.84	0.45	7.43	0.393
Placental abruption	1.03	0.26	4.15	0.968
Postpartum hemorrhage	3.62	2.31	5.68	<0.001
Preterm labor	1.66	0.94	2.92	0.081
Gestational diabetes	0.62	0.31	1.22	0.163
Preeclampsia	0.42	0.16	1.13	0.086

Table 2 summarizes the multivariate analyses which adjusted for confounding variables, showed that MFS was significantly associated with increased risks of amniotic fluid abnormalities (adjusted OR=1.68, 95% CI: 1.03-2.74, P=0.037) and postpartum hemorrhage (adjusted Or=3.62, 95% CI: 2.31-5.68, P<0.001).

Conclusion

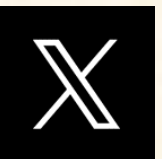
MFS is associated with increased risks of adverse obstetric outcomes, specifically amniotic fluid abnormalities and postpartum hemorrhage. These results highlight the importance of monitoring these specific pregnancy outcomes in MFS individuals to ensure optimal maternal-fetal health.

Reference

- Patberg e, duffy J, Hameed ab. rupture of a type b aortic dissection in a Postpartum Patient with Marfan syndrome. aJP rep 2019;9:e256–61.
- curry ra, Gelson e, swan l, dob d, babu-Narayan sV,Gatzoulis Ma, et al. Marfan syndrome and pregnancy: maternal and neonatal outcomes. bJOG 2014;121:610–7.

CONTACT INFORMATION

Email: Dr.saeed_bardwan@yahoo.com



@saeed_bardwan