

Obstetric and neonatal outcomes in pregnancies complicated by placental abruption with and without supporting sonographic findings – retrospective cohort study



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INTRODUCTION

Placental abruption (PA) is a major obstetric complication associated with severe maternal and neonatal outcomes. The diagnosis of PA is a clinical. While ultrasound imaging is commonly used to assess patients with suspected PA, it is not used to determine the diagnosis. It is not yet clear if sonographic findings consistent with PA are a marker of severity of abruption, and whether it can be used as a predicting factor for worse maternal and neonatal outcomes.

OBJECTIVE

We aim to study the obstetric and neonatal outcomes of patients clinically diagnosed with placental abruption with supporting sonographic findings compared to those without sonographic findings.

METHOD

A retrospective-cohort study of cases complicated by PA between 2009 and 2020 was conducted. Placental histopathology, obstetric and neonatal outcomes of all cases clinically diagnosed with PA with sonographic findings were compared to PA cases without sonographic findings. Included were all cases of singleton clinically diagnosed PA at gestational age >24 weeks. Primary outcome was composite of severe adverse neonatal outcomes.

RESULTS

PA with sonographic features was characterized by higher rates of prematurity (75% vs. 38.9%, $P<0.001$), NICU hospitalization (79.2% vs. 54.4, $P<0.01$) and morbidity due to prematurity such as respiratory distress syndrome (RDS) and sepsis. In a multivariable regression analysis severe composite neonatal outcome was **independently** associated with the presence of sonographic features (aOR=1.3, 95%CI 1.12-3.97) and inversely associated with gestational age at delivery (aOR=0.51, 95% CI 0.22-0.86). Placental Maternal vascular malperfusion were also independently associated with the presence of sonographic features (aOR=1.14, 95%CI 1.06-2.76) and inversely associated with gestational age at delivery (aOR=0.69, 95% CI 0.45-0.90).

CONCLUSIONS

clinically diagnosed placental abruption with supporting sonographic features were associated with increase obstetric and neonatal morbidity.

	PA W/O sonographic features (n=270)	PA with sonographic features (n=48)	P Value
Birthweight (gr)	2611 ± 808	1900 ± 285	0.0001
Umbilical Ph ≤ 7.1 (%)	28 (10.3)	3 (6.25)	0.59
Apgar 5 < 7 (%)	27 (10)	4 (8.3)	1
NICU (%)	147 (54.4)	38 (79.2)	0.0014
Seizures (%)	2 (0.7)	0	
Periventricular leukomalacia (%)	1 (0.3)	0	
Hypoxic-ischemic encephalopathy (%)	3 (1.1)	0	
Intraventricular hemorrhage (%)	9 (3.3)	2 (4.2)	0.67
Hypoglycemia (%)	12 (4.34)	7 (14.6)	0.013
Mechanical ventilation (%)	78 (28.8)	23 (47.9)	0.01
Meconium aspiration (%)	1 (0.4)	0	
Respiratory distress syndrome (%)	37 (28.8)	19 (39.5)	0.001
Necrotizing enterocolitis (%)	0	2 (4.2)	
Phototherapy (%)	62 (22.9)	22 (45.8)	0.002
Sepsis (%)	4 (1.4)	12 (25)	0.001
Anemia (%)	36 (13.3)	11 (22.9)	0.11
Transfusion (%)	36 (13.3)	6 (12.5)	1
Neonatal death (%)	3 (1.1)	3 (6.25)	0.046
Composite adverse neonatal outcomes (%)	199 (73.7)	40 (83.3)	0.2
Composite severe adverse neonatal outcomes (%)	38 (14)	6 (12.5)	1