Ablatio Placentae in Hypertensive and Normotensive Pregnants: Perinatal and Neonatal Outcomes

Halil Aslan, Gökhan Yıldırım, İsa Aykut Özdemir, Altan Cebeci, Yavuz Ceylan

Clinics of Gynecology and Obstetrics, Ministry of Health Bakırköy Training and Research Hospital for Gynecology, Obstetrics and Pediatrics, İstanbul

Abstract

Objective: To compare the effect of abruptio placentae on the neonatal outcomes of hypertensive and normotensive pregnancies.

Methods: 115 cases of placental abruption between January 2002 and February 2004 were reviewed in our study. These cases were grouped as normotensives (n=50) and hypertensives (n=65). The case groups were compared for demographic features, the degree of placental abruption, the type of delivery, intrauterine growth restriction, oligohydramnios, preterm delivery, intrauterine fetal demise, umbilical artery Doppler measurements, birth weight, gender, Apgar scores, necrotizing enterocolitis (NEC), respiratuar distress syndrome (RDS), sepsis, mechanical ventilation, intensive care unit admission (NICU), and neonatal mortality.

Results: Incidence of placental abruption was determined as 0,26%. Grade 1 placental abruption was more frequent in the normotensive group while grade 2 abruption was more frequent among hypertensives ($p<0.001$; $p<0.001$). The rate of grade 3 placental abruption was not significantly different between the case groups ($p=0.64$). Intrauterine growth restriction and fetal distress were more frequent in the hypertensive case group ($p<0.001$, $p<0.001$ respectively). There was no significant difference between the case groups for either birth weight, oligohydramnios, preterm delivery, and stillbirth or the mode of delivery ($p=0.26$).

Conclusion: Among pregnancies complicated with placental abruption, intrauterine growth restriction and fetal distress rate was significantly higher in the hypertensive group when compared with the normotensive group. There was no significant difference between hypertansive and normotensive pregnancies for other perinatal and neonatal parameters.

Keywords: Placental abruption, hypertansion, perinatal, neonatal outcomes.

Normotansif ve hipertansif gebelerde plasenta dekolmanı: perinatal ve neonatal sonuçlar

Amaç: Plasenta dekolmanının hipertansif ve normotansif gebelerde perinatal ve neonatal sonuçlara etkisini karşılaştırmak.

Yöntem: Ocak 2002 – Şubat 2004 yılları arasında kliniğimizde plasenta dekolmanı tanısı alan 115 olgu çalışma grubumuzu oluşturdu. Bu olgular normotansif (n=50) ve hipertansif (n=65) olmak üzere iki gruba ayrıldı. Her iki olgu grubu demografik özellikler, dekolman derecesi, doğum şekli, intrauterin gelişme geriliği, oligohidroamnios, erken doğum, intrauterin fetal ölüm, umbilikal arter Doppler ölçümleri, doğum ağırlığı, cinsiyet, Apgar skorları, nekrotizan enterokolit, RDS, sepsis, mekanik ventilasyon, yoğun bakım gereksinimi ve neonatal mortalite yönünden karşılaştırıldı.

Bulgular: Plasenta dekolman insidansı %0.26 olarak hesaplandı. Grade 1 plasenta dekolmanı normotansif gurupta, grade 2 dekolman ise hipertansif grupta daha fazla izlendi ($p<0.001$; $p<0.001$). Grade 3 plasenta dekolmanı yönünden olgu grupları arasında anlamlı fark tespit edilmedi ($p=0.64$). İntrauterin gelişme geriliği ve fetal distress, hipertansif olgu grubunda daha fazla tespit edildi.($p<0.001$; $p<0.001$). Gruplar arasında doğum ağırlığı, oligohidroamnios, erken doğum ve ölü doğum yönünden fark tespit edilmedi. Olgu grupları arasında doğum şekli yönünden anlamlı fark tespit edilmedi ($p=0,26$).

Sonuç: Plasenta dekolmanı ile komplike olmuş gebeliklerde, intrauterin gelişme geriliği ve fetal distres hipertansif gebelerde anlamlı olarak yüksek bulundu; ancak diğer perinatal ve neonatal parametreler yönünden hipertansif ve normotansif gebeler arasında anlamlı bir fark tespit edilmedi.

Anahtar Sözcükler: Plasenta dekolmanı, hipertansiyon, perinatal, neonatal sonuçlar.

Correspondence: Gökhan Yıldırım, Atakent Mah. Soyak Olympiakent D10/57 34303 Küçükçekmece/İstanbul
e-mail: gokhan73yildirim@gmail.com

Introduction

Ablatio placentae is an obstetric complication which is so heavy and endangers both mother's and baby's life. The reason for ablatio placentae is unknown and its pathophysiology is not understood very well.[1] It is thought that some factors such maternal age, parity, smoking habit, presentations out of vertex, intrauterine growth retardation (IUGR), early membranous rupture and ablatio placentae history in previous gestations increase the risk for ablatio placentae.[1,2] Also, hypertensive disorders of gestation have a high incidence in all ablatio placentae cases.[3] Our aim within this study is to compare perinatal and neonatal outcomes of complicated gestations with ablatio placentae having or not having hypertensive disorder.

Methods

It is a cohort study based on 42.889 deliveries executed between January 2002 and February 2004 in Istanbul Bakirkoy Obstetrics and Children Illness of Training and Research Hospital. Perinatal and neonatal data is based on our computer database. Single gestations exceeding 23rd week were included to the study. Cases diagnosed as ablatio placentae were separated into two groups as hypertensive and normotensive. Perinatal and neonatal records include maternal age, gestational week at delivery, delivery mood, IUGR, intrauterine fetal death, oligohydroamnios, ultrasonographic Doppler studies, fetal distress, neonatal sexuality, birth weight, Apgar score, acceptance to newborn intensive care unit, necrotizing enterocolitis (NEC), sepsis, respiratory distress syndrome (RDS), mechanical ventilation and neonatal mortality. Ablatio placentae grade is determined in three different ways. It is graded as grade 1 ablatio placentae only in the existence of maternal bleeding, as grade 2 ablatio placentae only in the existence of fetal distress regardless of maternal bleeding and as grade 3 ablatio placentae only in case of fetal death. MedCalc statistical software 8.2.1.0 was used for statistics. T test for parametric data, chi-square and Fisher's absolute test for categorical data were used where statistical analysis is appropriate. Statistical significance is accepted as p value < 0.05.

Results

Ablatio placentae was observed 115 (0.26%) of all gestations over 23 weeks. While 65 (56%) of these 115 cases with ablatio placentae diagnosis were in hypertensive group, other 50 (44%) cases were in normotensive group. Both case groups were similar in terms of age, gravida and parity during delivery (p=0.59; p=0.23; p=0.12). Rates for grade 3 ablatio placentae were same in both case groups (p=0.64). When groups were evaluated in terms of grade 1 and 2; normotensive group had 22 (44%) cases with grade 1 ablatio placentae and hypertensive group had 9 (13.8%) cases with grade 1 ablatio placentae. Difference between both groups was significant (p<0.001). Grade 2 ablatio placentae was observed in 13 cases (26%) within normotensive group and in 39 cases (60%) within hypertensive group. The difference between both groups was statistically significant (p<0.001) (Table 1).

When both groups were compared in terms of gestational week, delivery mood, intrauterine fetal death and oligohydroamnios, it was observed that possibility of hypertensive pregnants for delivering before 37th gestational week was higher. Rate for abdominally delivery of normotensive pregnants was frequent. Oligohydroamnios and intrauterine fetal death incidences of normotensive pregnant group were higher but the difference between two groups was not significant (=0.18; p=0.26; p=0.23; p=0.64). Also, IUGR and fetal distress incidences in hypertensive group was significantly high (41.5%; 39%, p<0.001; p<0.001) (Table 2).

Application rate to the newborn intensive care unit was higher in normotensive group when both case groups were compared in terms of neonatal outcomes, but the difference was not significant

Table 1. Demographic qualities of cases with ablatio placentae.

	Normotensive (n=50)	Hypertensive (n=65)	p
Age	27.9±5.2	28.5±5.9	0.59
Gravida	2.70±1.8	2.29±1.8	0.23
Parity	1.18±1.3	0.82±1.1	0.12
Grade 1 n (%)	22 (44.0)*	9 (13.8)	<0.001
Grade 2 n (%)	13 (26.0)	39 (60.1)*	<0.001
Grade 3 n (%)	15 (30.0)	17 (26.1)	0.64

*Difference between groups is statistically significant (<0.001).

Table 2. Perinatal outcomes of cases with ablatio placentae.

	Normotensive (n=50)	Hypertensive (n= 65)	p
Gestational week	32,1 ± 4,0	32.9 ± 2,6	0.18
Delivery mood: (Vaginal / Abdominal) n (%)	2 (4.0)/48 (96.0)	7 (10.7)/58 (89.2)	0.26
İUGR n (%)	7 (14.0)	27 (41.5)*	<0,001
Oligohydroamnios n (%)	5 (10.0)	2 (3.0)	0.23
Intrauterine fetal death n (%)	15 (30.0)	17 (26.1)	0.64
EDFB-DRF n (%)	-	4 (6.1)	0.12
Preterm delivery n (%)	44 (88.0)	63 (96.9)	0.07
Fetal distress n (%)	15 (30.0)	39 (60.0)*	<0.001

İUGR: Intrauterine growth retardation, **EDFB:** End-diastolic flow block in umbilical artery, **DRF:** Diastolic reverse flow in umbilical artery. *Difference between groups is statistically significant (<0.001).

(p=0.06). Birth weights, RDS and neonatal mortality rates of newborns within normotensive group was higher than hypertensive group; but there was not significant difference between both case groups (p=0.52 and p=0.18; p=0.29). No significant difference was observed between neonatal parameters of two case groups (Table 3).

Discussion

Hypertensive disorders during gestation (chronic hypertension and hypertension induced by the gestation) are significant etiological indicators of ablatio placentae and it may reach to 10% in hypertensive pregnants depending on the severity of the actual disorder.[4,5] Lindqvist et al[6] found that ablatio placentae risk increased 3.4 times in pregnants with preeclampsia.

Perinatal mortality in cases with ablatio placentae changes between 2% and 67% as to the gestational age, fetal weight and to the grade of the ablatio.[7] Yalinkaya et al[8] found in their study in which they evaluated perinatal mortality rates that 32.14% of perinatal mortality cases were depending on ablatio placentae. It was also found that approximately half of deaths depending on ablatio placentae was in utero.[9] We found intrauterine fetal death in 32 (27%) within our study. Both Toivonen et al10 in 2002 and Kose et al[13] in 1997 found in their studies different perinatal mortality rates which may be confused within ablatio placentae cases with or without hypertensive disorders. Abdella et al[14] found perinatal mortality in hypertensive pregnants as 38% when compared with normotensive pregnants (32%). Morgan et al[15] reported perinatal mortality rates in both hypertensive and normotensive pregnants with ablatio placentae as respectively 17.2% and 13.1% and they interpreted low perinatal mortality in both

Table 3. Neonatal outcomes of cases with ablatio placentae.

	Normotansif (n=50)	Hipertansif (n=65)	p
Birth weight	1708 ± 775	1631 ± 519	0.52
Sexuality (Male/Female)	26 (52) / 24 (48)	34 (52.3) / 31 (47.6)	0.97
Apgar score for 1st minute	5.3±1.8	5.4 ± 1.8	0.77
Apgar score for 5th minute	7.8±1.8	8.0 ± 1.1	0.46
Necrotizing enterocolitis n (%)	1 (4.5)	4 (12.5)	0.64
Sepsis n (%)	2 (9.0)	4 (11.1)	0.80
Respiratory distress syndrome n (%)	4 (18.1)	2 (5.5)	0.18
Mechanical ventilation n (%)	1 (2.8)	3 (6.2)	0.63
Acceptance to newborn intensive care n (%)	6 (27.2)	5 (15.6)	0.06
Neonatal mortality n (%)	3 (12.0)	1 (2.7)	0.29

case groups as neonatal care conditions which was developed and improved within the elapsed period. While perinatal mortality rate was 36% in hypertensive pregnants with ablatio placentae, this rate was found as 26% in normotensive pregnants in our study. No significant difference was observed between both groups in terms of perinatal mortality.

Abdella et al[14] found positive correlation between increasing ablatio placentae grade and maternal morbidity; but Kayani et al[11] found a rare maternal morbidity and they interpreted it as good and intensive post-partum care. In our study, grade 1 ablatio placentae in normotensive group and grade 2 ablatio placentae in hypertensive group were significantly high. There was no difference between hypertensive and normotensive pregnants in terms of grade 3 ablatio placentae.

Heavy ablatio placentae together with fetal bradycardia exist together with bad perinatal outcomes.11 We observed fetal distress in hypertensive group in significantly higher rate; but we found both case groups similar in terms of intrauterine fetal death and neonatal mortality rates. This can be partially explained by increased cesarean rates. In fact, Witlin et al[12] showed that cesarean delivery decreased neonatal mortality and they also showed that being dead of fetus during application increased maternal morbidity. Cesarean was applied to 48 cases in normotensive group and to 58 cases in hypertensive group in our study. We can explain the similarity of neonatal mortality rates within case groups by increased cesarean rate within case groups.

Conclusion

Among pregnants complicated with ablatio placentae, intrauterine growth retardation and fetal distress rate was significantly higher in the hypertensive group when compared with the normotensive group. There was no significant difference between hypertensive and normotensive pregnants for other perinatal and neonatal parameters.

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