Effect of Delivery Mode on the Perinatal Outcome in Twin Gestations

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Abstract
Objective: Aim of the study is to analyze effect of delivery mode on outcome of the twins.
Materials and Methods: Study consisted of 124 twin gestations, delivered at 25-41 weeks of gestation. Operative deliveries were excluded except breech extraction. Patients given a trial of vaginal delivery were included. Twins were delivered by abdominal route if the intertwin delivery time was >40 minutes, or for the following reasons; cord prolapse, fetal distress, and persistent transverse lie. The main outcome measure was first and fifth minute Apgar scores of twin A and B.
Results: Demographic, obstetrical characteristics and Apgar scores were similar in patients delivered abdominally and vaginally. There was 9.3% failed vaginal labor in twin B. Main significant factor influencing Apgar scores of both twin A and twin B was birthweight of <1500 gr ($p$ <0.001). Delivery mode and presentation did not effect Apgar scores significantly in both twin A and twin B.
Discussion: Caesarean delivery did not improve fetal outcome in twin gestations, and the only significant factor associated with depressed Apgar scores was found to be birthweight. Delivery mode and presentation were only considered significant in twins with a birthweight of <1500 gr.
Keywords: twin pregnancy, delivery mode, Apgar score

Özet
İkiz Gebeliklerde Doğum Şeklinin Perinatal Sonuçlara Etkisi

Amaç: Doğum şeklini ikiz bebekler üzerine olan etkisini araştırılmıştır.
Sonuçlar: Demografik, obstetrik karakterleri ve Apgar skorları normal doğum yapan ve sezaryen olan hastalarda benzerdi. İkiz B’de vajinal doğumların %9,3’si başarısız olmuştur. İkiz A ve B’nin Apgar skorlarını etkileyen temel önemli faktör doğum kilosunun 1500 gr’dan küçük olması ($p$<0.001). Doğum şekli ve prezentasyon hem ikiz A’da hem de B’de Apgar skorlarını etkilememektediydi.
Tartışma: İkiz gebeliklerde sezaryen doðum, fetal sonuçları etkilememektedi ve düşük Apgar skorlarıyla ilişkili tek önemli faktör doğum kilosu. Doðum şekli ve prezentasyon sadece 1500 gr’in altında ikizlerde önemliydi.
Anahtar sözcükleri: ikiz gebelik, doğum şekli, Apgar skoru

Introduction
Perinatal morbidity and mortality is increased in multiple gestations, particularly twin pregnancies and the preferred route of delivery for multiple gestations is controversial (1).

Traditionally, caesarean is the method of choice in non-vertex presenting twin A. Vaginal delivery is generally considered for vertex-vertex twins; however, optimal delivery mode of the non-vertex second twin is not established. We studied the effect of delivery mode on outcome of the twins.

Materials and Methods
The study consisted of retrospective analysis of 124 twin gestations, delivered at 25-41 weeks of gestation. Compli-
Results

Demographic and obstetrical characteristics of the patients are shown in Table 1. Presentation of twin A in 67.7% of patients was vertex, and 32.3% of twin A was non-vertex presentation. Twin B was 45.2% in vertex presentation and 54.8% in non-vertex presentation. In the twins, 74.2% of twin A and 76.6% of twin B were delivered by caesarean. Caesarean indications of these failed vaginal births were cord prolapse (33.3%) and persistent transverse lie. As a hospital protocol, persistent transverse twin B was managed expectantly for a maximum of 40 minutes to turn to cephalic/breech presentation by abdominal route if the intertwin delivery time was >40 minutes, or for the following reasons; cord prolapse, fetal distress, persistent transverse lie.

The main outcome measure was first and fifth minute Apgar scores of twin A and B. Obstetrical, demographical data, birthweight, Apgar scores, mode of delivery, newborn care were studied from obstetrical database and medical recordings.

The main interaction affecting first and fifth minute Apgar scores of twin A was between birthweight and delivery mode (p<0.001, p<0.001 respectively); twin A of <1500 gr delivered by vaginal route had poorer Apgar scores than those delivered by caesarean (Figure 2A). Delivery mode was not important in twin A of >1500 gr. Interactions of presentation with the other measures was not significant for the first minute Apgar score of twin A; but we found important interactions with the fifth minute. Vaginal delivery of non-vertex twin A was a significant determinant of poor fifth minute Apgar score in these subgroups (Figure 2A, p=0.03).

First minute Apgar score of twin B was only affected by birthweight of <1500 gr (Figure 1), Delivery mode and presentation did not effect the Apgar scores significantly in both twin A and twin B.

Table 1. Obstetrical characteristics of twins delivered by caesarean vs. vaginal delivery. The main outcome measure Apgar scores are similar in twins delivered by vaginal and abdominal route

<table>
<thead>
<tr>
<th></th>
<th>Caesarean delivery</th>
<th>Vaginal delivery</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>26.66±6.77</td>
<td>25.31±5.86</td>
<td>0.171</td>
</tr>
<tr>
<td>Gravida</td>
<td>2.26±1.45</td>
<td>2.24±1.09</td>
<td>0.629</td>
</tr>
<tr>
<td>Parity</td>
<td>0.91±1.26</td>
<td>1.069±0.998</td>
<td>0.211</td>
</tr>
<tr>
<td>Birthweight</td>
<td>2277±452 gr</td>
<td>2373±781 gr</td>
<td>0.533</td>
</tr>
<tr>
<td>Twin A</td>
<td>2228±441 gr</td>
<td>2260±665 gr</td>
<td>0.811</td>
</tr>
<tr>
<td>Twin B</td>
<td>35.75±2.34</td>
<td>35.31±3.82</td>
<td>0.766</td>
</tr>
</tbody>
</table>

Table 2. Risk of depressed Apgar of <5 in twin A and twin B in relation to birthweight, presentation and delivery mode

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>95%CI</th>
<th>p</th>
<th>OR</th>
<th>95%CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1’ Apgar &lt;5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin A</td>
<td>0.86</td>
<td>0.37-2.00</td>
<td>0.728</td>
<td>0.66</td>
<td>0.05-9.20</td>
<td>0.757</td>
</tr>
<tr>
<td>Non-vtx</td>
<td>8.34</td>
<td>1.60-43.50</td>
<td>0.012</td>
<td>53.37</td>
<td>4.62-617.09</td>
<td>0.001</td>
</tr>
<tr>
<td>&lt;1500 gr</td>
<td>0.62</td>
<td>0.24-1.59</td>
<td>0.318</td>
<td>1.70</td>
<td>0.16-17.78</td>
<td>0.658</td>
</tr>
<tr>
<td>VG delivery</td>
<td>0.97</td>
<td>0.46-2.05</td>
<td>0.938</td>
<td>5.43</td>
<td>0.47-62.62</td>
<td>0.175</td>
</tr>
<tr>
<td>Twin B</td>
<td>10.89</td>
<td>1.26-94.48</td>
<td>0.03</td>
<td>12.65</td>
<td>1.96-81.81</td>
<td>0.008</td>
</tr>
<tr>
<td>VG delivery</td>
<td>0.49</td>
<td>0.20-1.23</td>
<td>0.127</td>
<td>4.25</td>
<td>0.61-29.60</td>
<td>0.144</td>
</tr>
</tbody>
</table>

*Logistic regression analysis
and birthweight on first minute Apgar of twin B. However, we found significant interactions with fifth minute Apgar of twin B (Figure 2B); Vertex presented twin B had poorer Apgar scores when the baby was <1500 gr (p=0.002) and delivery of twin B <1500 gr by vaginal route was associated with lower Apgar scores (p=0.01). Delivery mode was not important for non-vertex twin B (p=0.60).

**Discussion**

Twin gestations account for 10% of the perinatal mortality. Most aspects of intrapartum management and delivery of the twins are controversial (1). We studied the effect of delivery mode on the Apgar scores of twins and further analyzed the patients in non-vertex presentation and birthweight of <1500 gr.

The mode of delivery for the low twin <1500 gr is controversial, regardless of presentation (2,3). Ziadéh et al. reported that the differences in neonatal outcome are accounted by the birthweight, rather than mode of delivery (4). In our study, we found that the main measure effecting the Apgar scores was birthweight of <1500 gr. However, vaginal delivery was a risk factor for twins of birthweight <1500 gr and caesarean improved the fetal outcome in twins of <1500 gr and corrected the differences in neonatal outcome. Caesarean section is the optimal route of delivery for all twins expected to have birthweight <1500 gr (3).

Non-vertex presentation of twin A is usually considered as a caesarean indication (1), besides, there is a risk of locked twins in breech-vertex presentations (5). In singleton pregnancies, it is proposed that breech presentation alone is not an indication for caesarean section if the infant is >1500 gr (6). Blickstein et al. reported that vaginal birth was safe for breech presenting twin A in terms of depressed Apgar score and neonatal mortality, that weighed at least 1500 gr (7). A trial of vaginal birth for non-vertex twin A in multiparous women was tried unless the presentations were breech-vertex and the main factor effecting the outcome of twin A was found to be birthweight of <1500 gr in our study.

Delivery mode of the non-vertex second twin is uncertain. Some advocate caesarean rather than vaginal delivery in non-vertex twin B (8,9) however, others report that perinatal mortality and low-5 minute Apgar scores are not increased when the non-vertex twin B is delivered vaginally after the criteria for vaginal delivery of a singleton breech are met (10,11). Acker et al. reported that there is no statistically significant increased morbidity in vaginally delivered non-vertex twin B of >1500 gr (10). There are reports that external cephalic version is considerably successful in non-vertex twin B and it may reduce the caesarean rate (12,13). However, external cephalic version brings the risk of fetal distress, cord prolapse and compound presentation (14). It has been reported that these risks are not encountered in breech extraction and breech extraction may be the route of delivery for non-vertex twin B of >1500 gr rather than caesarean or external cephalic version (14,15) and we found that breech extraction could safely be performed for non-vertex presenting twin B.

In conclusion, delivery by caesarean did not improve the fetal outcome in twin gestations, and the only significant
factor associated with depressed Apgar scores was found to be birthweight. Delivery mode and presentation were only considered significant in twins with a birthweight of <1500 gr.

References