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Method of Delivery in Multiparous Twin Pregnancy

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Abstract

Objective: Analyzing birth methods and comparing Apgar scores with respect to birth methods of the 64 multiparous twin pregnancies admitted to our clinic during labor between 2000-2004.

Methods: Sixty-four multiparous twin pregnancies admitted to our clinic during labor, with 32 to 41 weeks of gestation between 2000-2004 were analyzed. Presentations of the babies, birth methods, gestational weeks at birth, Apgar scores were compared retrospectively through patients` records. Logistic Regression Analysis, Mann Whitney U test and Kruskal Wallis test were used.

Results: Vaginal birth rate is 59.4%, cesarean section birth rate is 40.6%. Highest cesarean section rate is encountered in breech presentation of the first baby. For births given under 36 weeks of gestation, the rates of Apgar scores under seven in vaginal births for the first and second babies are both 23.8%. At 36 weeks and over, the rates are zero for the first baby, and 5.90% for the second baby. For cesarean section births, under 36 weeks of gestation, the rates of Apgar scores under seven are zero for the first baby, and 8.30% for the second baby. For 36 and over weeks, the rates are zero for the first baby and 21.43% for the second baby.

Conclusion: Cesarean rate is 40.6% in our sample space. Prematurity has high prevalence (51.56%). Disregarding gestational age at birth, when the rates of fifth minute Apgar scores under seven are compared with respect to birth methods; for the first baby, it is found high for vaginal birth at 5.6% significance level (p=0.056). There were no first babies with Apgar scores under seven in cesarean section births. There is no difference in birth methods for second babies. Fetal weight is found to be a significant risk factor for Apgar scores of the babies.

Keywords: Presentation, vaginal delivery, cesarean delivery, apgar score.

Multipar ikiz gebeliklerde doğum şekli

Amaç: 2000-2004 yılları arasında kliniğimize travayda başvuran 64 multipar ikiz gebenin, doğum şekillerinin incelenmesi, Apgar skorlarının doğum şekillerine göre karşılaştırılması.

Yöntem: 2000-2004 yılları arasında kliniğimize travayda başvuran, 32 ile 41 gebelik haftası arasında olan, 64 multipar ikiz gebe çalışmaya alınmıştır. Bebeklerin prezentasyonları, doğum yöntemleri, doğum haftaları, Apgar skorları, hasta kayıtları retrospektif olarak taranarak karşılaştırıldı. İstatistiksel yöntem olarak Lojistik Regresyon Analizi, Mann Whitney U test ve Kruskal Wallis testi kullanıldı.

Bulgular: Vaginal doğum oranı %59.4, sezaryen oranı %40.6 olarak saptanmıştır. Prezentasyonuna göre en yüksek sezaryen oranı (%46) birinci bebeğin makat prezentasyonunda geldiği durumda izlenmiştir. Vaginal doğumlarda Apgar skorunun yedinin altında olma oranı, gestasyonel haftası 36 haftanın altındaki doğumlarda birinci ve ikinci bebek için %23.8, gestasyonel haftası 36 hafta ve üstündeki doğumlarda bu oran birinci bebek için sıfır, ikinci bebek için ise %5.90'dır. Sezaryen doğumda ise Apgar skorunun yediden düşük olma oranı preterm doğumlarda birinci bebek için sıfır, ikinci bebek için %8.30, 36 hafta ve üstünde birinci bebek için sıfır, ikinci bebek için %21.43'dür.

Sonuç: Çalışma grubumuzda sezaryen %40.6 oranındadır. Prematürite yüksek prevalansa sahiptir (%51.56). Gebelik haftaları gözardı edilerek, bebeklerin beşinci dakika Apgar skorlarının yedinin altında olma oranları doğum yöntemlerine göre karşılaştırıldığında; birinci bebekte, Apgar skorunun yediden düşük olma oranları, normal doğumda %5.6 anlamlılık düzeyinde yüksek bulunmuştur (p=0.056). Sezaryen ile doğan birinci bebeklerde yedinin altında Apgar skorlu bebek izlenmemiştir. İkinci bebekler açısından doğum yöntemleri arasında fark yoktur. Fetal ağırlık, bebeklerin Apgar skoru için anlamlı risk faktörü olarak bulunmuştur.

Anahtar Sözcükler: Prezantasyon, vaginal doğum, sezaryen, apgar skoru.

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Introduction

Twin fetuses are generally come into existence as a result of impregnation of two different eggs; they are fraternal twin, dizygotic twin or twin brothers/sisters. One third of them originate from a single fertilized egg which is called monozygotic twin. Since delivery complications are seen much more than dizygotic twins, delivery by cesarean is preferred frequently. As a result of assisted reproductive techniques, the incidence gradually increases. When 37 weeks are taken as a threshold value for preterm delivery, it increases up to 43.6%. Cord accidents, malpresentation, increase of operative delivery risk, uncontrolled bleeding from non-diagnosed vasa previa and postpartum bleeding are seen much more compared to single pregnancies. No consensus on the best delivery method for twin pregnancies has been achieved yet. Comorbidity of other complications such as gestational week, zygosity, time elapsed during labor, presentations of first and second babies, preeclampsia, intrauterine growth retardation affect delivery method. Delivery method of pregnancies with especially head-rectum representation is controversial. Careful intrapartum approach in twin pregnancies is compulsory to get optimal results. Such pregnancies should be monitored in centers with experienced obstetrician and pediatric teams.[1] In our study, 64 twin pregnancies without multipara and abdominal delivery histories who applied to Gynecology and Obstetrics Clinic of Haseki Training and Research Hospital in between 2000 and 2004 were examined for their gestational weeks, presentations of their babies, delivery methods and Apgar scores retrospectively. Delivery methods preferred by obstetrician according to gestational week, presentation type and clinical experience were compared by taking Apgar scores at fifth minute of babies into consideration.

Method

83 twin pregnants on 32nd-41st gestational week and without multipara, diamniotic dichorionic, systemic disease and abdominal delivery history were found who applied to Haseki Training and Research Hosptial in between January 2000 and December 2004 for delivery.

Monoamniotic twin pregnancies, pregnants without fetal anomaly scanning and those with problematic reference cardiotocography findings among these 83 pregnants were excluded from the study (n=3). Those who were taken into emergency cesarean (n=12) due to complications during normal delivery (cord prolapse, acute fetal distress, fetal loss), those with presentations except head-head, head-rectal, and rectal at first baby (transverse presentations, foot presentations for first and second babies) were excluded from the study (n=4).

43 of patients were being followed in our clinic beginning from the first trimester. Information of remaining 21 patients was accessed through records kept by patients.

Presentation types, delivery methods, delivery weeks and of these twin pregnants who delivered and Apgar scores of babies were examined by scanning delivery files retrospectively. Prematurity limit for twin pregnancies as delivery week was accepted as 36 weeks ± 2 days. Apgar score evaluation was done as to <7 and >=7 for clinical significance.

When evaluating findings obtained from the study, SPSS (Statistical Package for Social Sciences) for Windows 15.0 was used for statistical analysis. When evaluating study data, Logistic Regression Analysis was used to evaluate the effect of risk factors on Apgar score. Mann Whitney U test was used to compare parameters among groups in case of two groups when comparing quantitative data. Kruskal Wallis test was used to compare parameters among groups in case of more than two groups when comparing quantitative data.

Results

Totally 64 twin pregnancies matching the criteria were delivered in Gynecology and

Obstetrics Clinic of Haseki Training and Research Hospital in between 2000 and 2004. Results were evaluated within 95% confidence interval and p<0.05 significance level. By taking 64 observations into consideration, test capacity was found as (1-β) 56.5% at 0.005 significance level. When presentation types of first and second babies in all twin pregnancies were evaluated, it was found that there were 22 cases with head-head presentation, 24 cases with head-rectal presentation and 18 cases with rectal presentation for first baby (Table 1). 38 (59.38%) of these twin pregnancies were delivered by vaginal way, 26 (40.63%) of them were delivered by cesarean. Delivery method according to presentation types in twin pregnancies are given in Table 2.

Delivery method in twin pregnancies according to pregnancy week is shown in Table 3. Delivery rates by cesarean for pregnancies with <36 and >=36 gestational week were found as 36.36% and 45.16%, respectively. The presentation where first baby comes from rectum is the presentation with the highest rate of cesarean in premature and term twin pregnants (50%, 43%). The lowest cesarean rate in premature was occurred in head-head presentation (17%).

When Apgar score evaluation in our study group is divided into two groups as <7 and >=7, the rates of fifth minute Apgar scores below 7 in babies delivered by vaginally below 36th week were 23.8% and 23.8% for first and second babies, and they were higher than babies delivered by cesarean (0, 8.3%). The rates of fifth minute Apgar scores below 7 in babies delivered by cesarean at or above 36th week (0, 21.43%) were found higher than babies delivered vaginally (0, 5.9%). It was found that delivery method in all gestational weeks was not statistically a significant risk factor for Apgar scores of both babies (p>0.05). It is considered that the case of statistically significance was caused by narrow sample size (Table 4).

In premature and in head-head presentation, Apgar score below seven was 25% in first and second babies at normal delivery, there is no Apgar score below seven in cesarean. While Apgar score in head-rectal presentation is 30% in normal delivery, there is no Apgar score below seven in cesarean. While there is no Apgar score below seven at normal delivery in presentation where first baby is rectal, it was found as 17% in second baby delivered by cesarean (Tables 5, 6).

In term deliveries and head-head presentation, there is no Apgar score below seven in first and second babies at normal delivery, and

Table 1. Presentation types in twin pregnancies.

Presentation Type	Number	Percent
Head-head	22	34.0%
Head-rectal	24	38.0%
Rectal	18	28.0%
Total	64	100.0%

Table 2. Delivery methods in twin pregnancies according to presentation types.

Presentation Type	Vaginal Delivery	Cesarean
Head-head	16	6
Head-rectal	16	8
Rectal	6	12
Total	38 (59.375%)	26 (40.625%)

Table 3. Delivery methods in twin pregnancies according to gestational week.

Delivery method	Gestational week	
	<36 Hafta	≥36 Hafta
Vaginal delivery	21 (63.64%)	17 (54.84%)
Cesarean	12 (36.36%)	14 (45.16%)
	n=33 (51.56%)	n=31 (48.44%)

Table 4. Comparison of Apgar score rates according to delivery method.

Apgar score	Delivery type	N	<7 rate	P
1st baby 5th minute Apgar score	Vaginal	38	13.2%	0.056
	Cesarean	26	0.0%	
2nd baby 5th Apgar score	Vaginal	38	18.4%	0.754
	Cesarean	26	15.4%	

it is 25% in second baby at cesarean delivery. In head-rectal presentation, there is no Apgar score below seven in first baby at normal delivery, and it is 17% in second baby; Apgar score below seven does not exist in cesarean delivery while it is 50% in second baby. In presentations where first baby come as rectal presentation, Apgar score below seven does not exist at normal delivery and cesarean. These rational differences are not statistically significant (p>0.05) (Table 7).

In our study, fetal weight was found as a significant variable in premature for both babies (p<0.05) (Tables 5, 6). Below thirty-six weeks, rates of Apgar score being below seven was found significantly high for first baby (p<0.05) (Table 8).

Discussion

With the increase of using assisted reproductive techniques and ovulation induction applications, there has been an increase recently in multiple pregnancy incidence especially twin pregnancies. Despite the increase in incidence, no consensus has been reached yet for the best delivery method in twin pregnancies. In order to conclude a well-made antenatal follow-up successfully, a good intrapartum follow-up is needed to protect babies from fetal asphyxia and birth trauma. Delivery method of pregnancies especially with head-rectal presentation is controversial. Careful intrapartum approach in twin pregnancies is mandatory to obtain optimal results. In clinics where twin pregnancies will be delivered, there should be:

Table 5. Risk factors affecting Apgar score of 1st baby in deliveries under 36th gestational week.

		5th minute Apgar score of 1st baby								
		≥7		<7						
		n	%	n	%	B	OR*	(%95CI)**		p
Presentation Type	HH	8	28.6%	2	40.00%					0.690
	HR	11	39.3%	3	60.00%	2.7	15	0	7374.1	0.392
	R -	9	32.1%	0	0.00%	2.2	8.6	0	2662.5	0.461
Delivery Method	Vaginal	16	57.1%	5	100.00%					
	Cesarean	12	42.8%	0	0.00%					
Fetal Weight		2273±397		1554±736		-0.003	0.997	0.995	0.9995	**0.018**

** Odds Rate, ** Confidence Internal*

Table 6. Risk factors affecting the Apgar score of 2nd baby in deliveries under 36th gestational week.

		5th minute Apgar score of 2nd baby								
		≥7		<7						
		n	%	n	%	B	OR*	(%95CI)**		p
Presentation Type	HH	8	29.6%	2	33.3%					0.761
	HR	11	40.70%	3	50.00%					
	R -	9	29.60%	1	16.70%	2.7	15.1	0	24777.4	0.472
Delivery Method	Vaginal	16	59.30%	5	63.60%	1.6	8.7	0	9739.0	0.570
	Cesarean	11	40.70%	1	36.40%					
Fetal Weight		2242±373		1123±269		-0.00300	0.99655	0.99379	0.99933	**0.015**

** Odds Rate, ** Confidence Internal*

Table 7. Risk factors affecting Apgar score of 2nd baby in deliveries over 36th gestational week.

		5th minute Apgar score of 2nd baby								
		≥7		<7						
		n	%	n	%	B	OR*	(%95CI)**		p
Presentation Type	HH	10	38.5%	2	38.7%					0.431
	HR	7	26.9%	3	32.3%	14.9	3.00E+06	0	2.00E+16	0.196
	R -	9	34.6%	0	0.00%	17.5	4.00E+07	0	2.00E+19	0.207
Delivery Method	Vaginal	15	57.7%	2	54.8%					
	Cesarean	11	42.3%	3	45.2%					
Fetal Weight		2762±498		1730±789		0.000	0.994	1.000	1.003	0.182

** Odds Rate, ** Confidence Internal*

- Experienced obstetrician
- Antenatal follow-up information
- Ultrasonography device
- Cardiotocography (with twin option)
- Blood transfusion facility
- Facility of opening I.V. way
- Anaesthetist
- Newborn resuscitation (team and equipment sufficient for two or more babies)
- Emergency cesarean facility.[2]

In increased morbidity and mortality in twin pregnancies, it is generally considered that early labor is caused by intrauterine growth retardation, twin-to-twin transfusion syndrome or monoamniocity.[3] However, in epidemiological studies, increased perinatal death in twins above 2500gr was found 6 times more compared to single pregnancies. 10-12% of perinatal deaths are multiple pregnancies. Loss rate of single fetus is approximately 0.5-6.8%.[4] In another study researching mortality according to birth weight in twin pregnancies where babies over 3000gr were compared, it was found that perinatal mortality increase was 70% more in twin pregnancies and intrapartum baby deaths were 3 times more than single pregnancies.[5] As weight difference between twin pairs increases, perinatal morbidity and mortality also increase.[6] However, it was found in a study that 15% weight difference between twin pairs did not increase presentation anomaly (except head-head) and cesarean rates.[7]

59.3% of twin pregnants attended to the study was delivered by vaginally. Generally, vaginal delivery was the method mostly preferred than cesarean.

Prematurity in twin pregnancies is a significant problem. While preterm delivery is 43.6% in twin pregnancies when week 37 is taken as a threshold in the literature, it is 48.44% in this study since the threshold was taken as week 36. Preterm delivery rate is complied with the literature. Cesarean rates of twin pregnancies more than 36th gestational week was found higher than twin pregnancies less than 36th gestational week.

In all gestational weeks, it was seen that the variants of presentation type and delivery method were not statistically significant risk factor for Apgar score of 1st and 2nd babies.

Minimum delivery by cesarean in our clinic was observed in head-head presentation group. In this presentation, vaginal delivery was calculated as 72.7%. Although there is no consensus

Table 8. Comparison of Apgar score rates according to gestational week.

	Gestational week	N	<7 rate	P
1st baby 5th minute Apgar score	<36	33	15.20%	0.025**
	≥36	31	0.00%	
2nd baby 5th minute Apgar score	<36	33	18.20%	0.829
	≥36	31	16.10%	

** Odds Rate, ** Confidence Internal*

in the literature for low-weighed babies below 1700 gr, vaginal delivery is suggested mostly (while some researchers suggest cesarean).[8]

When delivery methods are considered by evaluating fifth minute Apgar score below seven in head-head presentation, it is seen that cesarean is preferred in pregnancies below 36th gestational week while normal delivery is preferred in pregnancies at or above 36th gestational week. It was not found as statistically significant due to small sample size. It was stated in the literature that delivery could be waited in a safe way without regarding the time concept on its own by following continuous monitorization of second baby at normal deliveries.[9] If fetal distress occurs, there is emergency cesarean indication. Internal podalic version and hard forceps maneuvers should be avoided since they cause additional risks for baby.[10-13]

Head-rectal presentation has the most prevalence in our study. Optimum delivery method in head-rectal presentation is controversial. Chervenak et al. defined a protocol where second baby is out of head presentation.[14] According to this, in babies over 1800 g first baby is delivered by vaginally and rectal extraction is performed for second baby (if it has rectal presentation) by external version or help. There is no sufficient publication showing whether cesarean is preferred or not, or which method is the best for delivering twins below 1800 g with head-rectal presentation.[8] During the external cephalic version, relaxation of abdominal wall by epidural anesthesia is suggested. While in our study the score of Apgar below seven for first and second babies in Head-Rectum presentation at normal delivery below 36th gestational week was 30%, there was no Apgar score below seven in cesarean. When morbidity rates in delivery methods were taken into consideration in pregnancies below 36th gestational week, it has been seen that cesarean is preferred more than vaginal delivery for Head-Rectal presentation. There is no first baby with Apgar score lower than seven in vaginal delivery at Head-Rectum presentation at and above 36th gestational week while it is 17% in second baby; Apgar score below seven does not exist in first baby delivered by cesarean while it is 50% in second baby. If vaginal delivery conditions at and above 36th gestational week can be provided, it is seen that normal delivery is a suitable method in terms of second baby according to Apgar rates (if maternal complication, dystocia, fetal distress, weight difference among babies more than 15%, advanced intrauterine growth retardation etc. do not exist). These findings have been done according to differences between rates. Statistically no significant difference was found. This result is compatible with retrospective study results comparing Apgar scores of 141 rectally presented second babies according to delivery methods.[15]

The highest cesarean rate in our study was observed in the presentation where first baby came rectally. While cesarean rate in premature pregnancies was 50%, it was 43% in mature pregnancies. The presentation where first baby came rectally (rectal-head, rectal-rectal) forms 15-20% of all twins.[16] In these presentations, vaginal delivery is always attempted in cases with more than 1800g fetal weight in France and in cases without cephalopelvic disproportion, intrauterine growth retardation and maternal complication (only if first baby is rectal; it is not valid if first baby is transverse). This approach should be performed only if obstetricians are experienced for twin deliveries. If second baby is 20% heavier than first baby, delivery method can be modified.[17] In the metaanalyis published by Hogle et al. in 2003, it was concluded that planned cesarean may decrease the risk of low fifth minute Apgar score especially when first baby is rectally come.[18] In the USA, cesarean is accepted as the best method; because there is no publication showing that vaginal delivery is safe in these cases. In this study, Apgar score was not observed below seven for both delivery methods in this presen-

tation in mature pregnancies. In premature pregnancies, the only case where Apgar score was seen below seven was observed at second baby in the cesarean delivery. Delivery methods do not have any superiority over each other in this presentation. However, this can be associated with the experience of obstetrician in rectal presentation and twin delivery.[19] Fetal weight averages of first and second babies with Apgar score above seven born under 36th gestational week were found as 2273±397 g and 2242±373 g, respectively. It was found that Apgar scores increased as birth weights increased in both babies in premature twins. This is statistically significant ($p<0.05$). This result corresponds with the literature considering that the Apgar score is a parameter contributing to the evaluation of newborn's condition. In the survey called "Multicentric Multiple Pregnancy Study II–Perinatal Mortality in Twins" performed by the data of 15 centers, it was found that the fetuses lost in approximately three fourth of twins were lighter ones.[20]

In pregnancies at and above 36th gestational week, the relationship between fetal weight and Apgar score was not statistically significant. In the study comprising 1253 twin pregnants whose weights and Apgar scores were examined, Apgar scores of babies with lower weights were found lower.[4] The reason why some variables were not found statistically significant when it was researched if there is risk factor is the scarcity of pregnants included into our study. This study can be amplified by increasing the number of pregnants. By deciding the most proper delivery method, a careful intrapartum protocol should be followed. In cases where first baby is presented rectally, vaginal delivery is a suitable option if experienced obstetrician, midwife and anesthetist are present.[21] In low weighted premature babies, postpartum period is also important as well as intrapartum period. The preparation of pediatric team as well as obstetric team and providing newborn care conditions are also should not be ignored.

Conclusion

When delivery methods are compared with Apgar scores generally, despite delivery by cesarean seems more preferable than vaginal delivery, no superiority of delivery by cesarean has been observed over vaginal delivery for first and second baby in all three presentation types at and above 36th gestational week. It is seen in premature cases that vaginal delivery has higher morbidity than delivery by cesarean. It is needed to perform this study with a wider sample group to reach a general conclusion. Many experienced obstetricians prefer vaginal delivery in Head-Rectal, Rectal-Head, Rectal-Rectal or Head-Transverse twins. Cesarean is suggested in cases except them. If physician does not have sufficient training about version-extraction, cesarean should be preferred. Knowing obstetric maneuvers well is quite important in preventing delivery traumas. In this case, vaginal delivery cannot be affiliated with increased risk for twins. It was found that Apgar score increased as delivery weights increased in both babies in premature twins.

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