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DELIVERIES WITH BREECH PRESENTATION IN THE HEALTH CENTER ZAJEČAR IN A PERIOD FROM 2004 TO 2013

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The objective of the study was to show the frequency of breech presentation of a fetus and the method of pregnancy termination, factors determining delivery methods and the effects of delivery methods to neonatal outcome. Breech presentation deliveries done in the department of Gynecology and Obstetrics of the Health Center Zajecar within a ten-year period between the 1st of January 2004 and the 31st of December 2013 have been analyzed retrospectively. The factors that have been monitored are: parity, the age of a mother, fetus' body mass at birth, the condition of a fetus at birth (Apgar score in the first minute) and the method of delivery termination (vaginal route and caesarean section).

Results: Within the monitored period, there were 5475 deliveries in total, out of which 211 in breech presentation, which makes 3.85%. 74 women (35.1%) gave birth vaginally, and 137 (64.9%) by ceasarean section. The research showed statistically significant difference in the parity with higher frequency of primiparae than multiparae in the group who delivered by ceasarean section (2=26.041, df=1, $p<0.001$), as well as in the fetus' body mass of those delivered by ceasarean section compared to those who delivered vaginally ($t=5.614$, df=209, $p<0.001$). The age of a mother is not statistically significant in the group of those who delivered vaginally compared to those delivered by ceasarean section ($t=0.277$, df=209, $p>0.05$).

There is no statistically significant difference between the values of Apgar score of newborns of primiparae and multiparae ($U=5064.500$, $p>0.05$), but the value of Apgar score of newborns delivered by ceasarean section is significantly higher than of those delivered vaginally ($U=4094.500$, $p<0.05$).

Conclusion: Our analysis shows that cesarean section is a dominant method of termination of pregnancy with breech presentation of a fetus. Cesarean section is more frequent at primiparae than at multiparae and results in a better vitality of newborns at birth compared to vaginal delivery at breech presentation. Newborns delivered by cesarean section have significantly higher birth mass. Acta Medica Medianae 2016;55(1):21-25.

Key words: breech presentation, vaginal delivery, cesarean section

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Introduction

Breech presentation is a longitudinal position of a fetus with forefront pelvis and is present in 3-4% of all monofetal deliveries (1, 2). Delivery of a fetus with forefront pelvis is followed by higher perinatal morbidity and mortality compared to delivery with forefront head of a fetus (1, 2, 3). Perinatal mortality and morbidity at vaginal delivery of a term fetus with breech presentation are 2-5 times higher than at planned cesarean section (3, 4). Vaginal delivery at breech pre-sentation of a fetus implies high risk of serious complications: umbilical cord prolapse, amniotic fluid aspiration, maternal and fetal complications during delivery and frequency increase of operational termination of delivery (1, 2). Considering all possible complications during vaginal delivery, many studies recommend planned cesarean section as a method of pregnancy termination at breech presentation of a fetus (5,6,7).

According to the recommendations of the Royal College of Obstetricians and Gynecologists of the United Kingdom (RCOG), vaginal delivery at breech presentation is acceptable option in case all other contraindications of vaginal delivery are excluded (placenta previa, compromised fetal condition), inadequate pelvis, leg or knee presentation, fetus over 3800g or fetus with growth stagnation below 2000g, previous cesarean section, hyperextension of fetus' head and the lack of obstetrician's clinical practice (8).

As by recommendations for the management of delivery with breech presentation given by the American Congress of Obstetricians and Gynecologists (ACOG) 2006, vaginal delivery at breech presentation of a fetus in term is a reasonable option in strictly selected cases accompanied by obstetrician's experience in vaginal deliveries with breech presentation and necessary pre-figuration of possible risks to the patient (9).

Objective

The objective of the study is to show the frequency of fetus' breech presentation and the method of pregnancy termination, factors deter-

mining the method of delivery and the effect of delivery method to neonatal outcome.

Material and method

We have retrospectively analyzed the deliveries with breech presentation done in the Department of Gynecology and Obstetrics of the Health Centre Zajecar within a ten-year period from the 1st of January 2004 to the 31st of December 2013. As the source of the data we used Delivery Protocols and disease histories. The following factors were followed for all the patients: parity (primiparae and multiparae), the years of age, fetus' body mass at birth, the condition of a fetus at birth (Apgar score in the first minute) and the method of delivery termination (vaginal route with manual help as per Bracht and Smellie-Veit and caesarean section). According to Apgar score (Ap), the newborns are ranged into three categories as follows: 1. optimal Apgar score (Ap 8-10), 2. mild asphyxia (Ap 4-7) and 3. heavy asphyxia (Ap 0-3).

Statistical data analysis has been done in appropriate statistical software. We used 2 test, Student's t-test for two independent samples and rank sum test (Wilcoxon-Mann-Whitney test).

Results review

In the period from the 1st of January 2004 to the 31st of 2013, in the Department of Gynecology and Obstetrics of the Health Centre Zajecar, there were 5475 deliveries in total, out of which 211 with breech presentation, making 3.85% of all deliveries. There were 201 (95.3%) term deliveries with breech presentation, and 10 preterm (4.7 %). Among the breech presentation deliveries there were 129 (61.1%) primaparae and 82 (38,9%) multiparae.

Out of the total number of deliveries with forefront pelvis, 74 women (35.1%) delivered vaginally, of whom 68 (91,9%) by manual help as per Bracht, 6 (8.1%) by manual help according to Smellie-Veit, and 137 (64.9%) delivered operationally by cesarean section.

The decision on delivery method was made after the estimation of breech presentation type, pelvis of a mother, expected body mass of a fetus, condition of a newborn and additional possible obstetrics factors.

In the group of primiparae, out of 129 pregnant women, 28 (21.7%) delivered vaginally, and 101 (78.3%) delivered by cesarean section. In the group of multiparae, out of 82 pregnant women, 46 (56.1%) delivered vaginally, and 36 (43.9%) delivered by cesarean section. Deliveries at breech presentation of primiparae have statistically significantly higher rate of determination by cesarean section (2=26.041, df=1, $p<0.001$).

The average age of women who delivered vaginally was 27.3 years (sd=5.54), and 27.5 years (sd=5.5) for those delivered by cesarean section. There is no statistically significant difference in the average age of pregnant women between these two delivery methods (t=0.277, df=209, $p>0.05$).

The average body mass of newborns delivered vaginally was 2858,1g (sd=557.3 g), and 3280.6g (sd=501.6 g) of those born by cesarean section. The average body mass of fetuses born by cesarean section is statistically significantly higher compared to the average body mass of newborns delivered vaginally (t=5.614, df=209, $p<0.001$).

Out of the total number of newborns, 122 (57,8%) had optimal Apgar score, 82 (38,8%) had mild asphyxia, and 7 (3.3%) had heavy asphyxia. Dependence of the fetus' condition on the parity has been shown in the Chart no.1. The median of the Apgar score of the newborns of primiparae is 8 (range 3-10), and with the newborns of multiparae it is 8 (range 1-9) of. There is no statistically significant difference between the value of Apgar scores of the newborns of primiparae and multiparae (U=5064.500, $p>0.05$). Chart no. 1.

The dependence of the condition of a fetus on the method of delivery termination has been shown in the Chart no. 2. The median of the Apgar score of the newborns delivered vaginally is 8 (range 1-9), and with the newborns delivered by cesarean section it is 8 (range 2-10). There is a significant difference in the values of Apgar scores of the newborns delivered by cesarean section compared to those delivered by vaginal route (U=4094.500, $p<0.05$).

Chart no. 2.

Discussion

In our sample, the frequency of breech presentation of singleton pregnancies was 3.85% which is in accordance to the results from the bibliography (1, 2, 3, 6).

The method of delivery termination at breech presentation has been controversial for a long period of years and varies from acceptable obstetric choice of vaginal delivery (10, 11, 12, 13) to recommendation to terminate such delivery exclusively by cesarean section (5).

The representation of vaginal delivery at breech presentation is 35.1% in our sample, which is less than in the studies of other authors (10, 11), but it is in accordance with the results of French authors Gilfier et al. (12) and research in Belgium and Netherlands (14). There were less vaginally terminated deliveries in our maternity hospital in the period 2004-2013 than in the period 1998-2002, when it was 55% (15), which could relate to the influence of non-medical factors in a more liberal attitude in decision-making for cesarean section delivery. It, first of all, refers to the rights of patients, engagements of media and lawyers, less stress of the obstetrician alone, and therefore all the less experience of young obstetricians in the management of vaginal delivery with breech presentation (11). According to the research of Erkkola, it would be optimal to manage about 40% of deliveries vaginally without endan-

ger to neonatal outcome, considering that the degree of maternal complications have been significantly higher at cesarean section deliveries in comparison to vaginal delivery, often without any advantages to a newborn (16). French authors have reached a similar conclusion (13).

In our sample there are significantly more multiparae delivered vaginally compared to primiparae (56.1% compared to 21.7%), which is probably the result of obstetrician's estimation about the structure of pelvis and other obstetrics conditions. The data of some authors are in accordance with our results (6, 10, 17), while other show completely different results (14, 18).

According to the research of Gilberta and associates, neonatal mortality is 9 times higher at primiparae delivered vaginally with breech presentations than at primiparae delivered by cesarean section (18). Neonatal mortality decreases as parity increases, and is statistically significantly higher in a group of vaginally delivered compared to cesarean section delivery (19).

Neonatuses born in breech presentation by cesarean section have statistically significantly better condition at birth (Apgar score in the first minute) compared to those born vaginally. The same has been confirmed in the researches of other authors (17, 20), while in the study of Mijailović Radenko and associates, there is the difference but on the margin of statistic significance (11), and in the study of Fatušić and associates, the difference does not exist.

Postpartum vitality according to parity has been equal in the group of primiparae and multiparae (17).

The age of women delivered vaginally and by cesarean section at breech presentation of fetus hasn't shown statistically significant difference in our sample, which is in accordance with the results of other authors (11). The reason of that is most likely the reflection of the age of women gravitating to our maternity hospital. Opposite to our results, in the research of Babović and associates, vaginally delivered women have been statistically younger than those delivered by elective cesarean section (18).

Average body mass of fetuses delivered vaginally has been significantly lower than of those delivered by cesarean section (11, 18). The recommendation of the ACOG for possible vaginal delivery with breech presentation is estimated body mass of a fetus between 2500 g and 4000 g (9), and between 2000 g and 3800 g recommended by the RCOG (8). Fetuses in breech presentation with estimated body mass over 3500 g have 50% less probability of successful vaginal delivery than those of lower estimated body mass (21).

Safe vaginal delivery with breech presentation could be achieved by following strict criteria at the selection of patients, following intra-partum protocols, as well as with surveillance by experienced obstetricians (22).

Conclusion

Our analysis has shown that cesarean section has been dominant method of the termination of pregnancies with breech presentation of fetus. Cesarean section has been more frequent at primiparae than multiparae and results with a better vitality of newborns at birth compared to vaginal delivery with breech presentation. Newborns delivered by cesarean section have significantly higher birth weight. The method of delivery termination at breech presentation depends on the number of obstetrics factors, and its success is the result of the estimation of an experienced obstetrician based on the monitoring of actual obstetric conditions. Vaginal delivery at breech presentation with positive neonatal outcome is a realistic possibility in well selected cases.

As in the world, our professional associations should as well expose clear recommendations for the management of this type of deliveries in the form of national guide. Thereby, the differences in the approach of different institutions would decrease and obstetricians would be legally more protected at taking a risk of vaginal delivery with breech presentation.

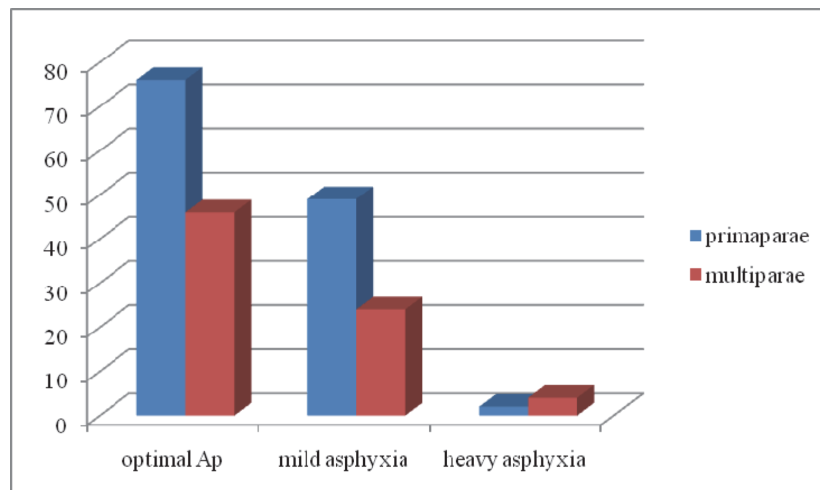

Chart no. 1. Fetus' condition at birth in dependence of parity

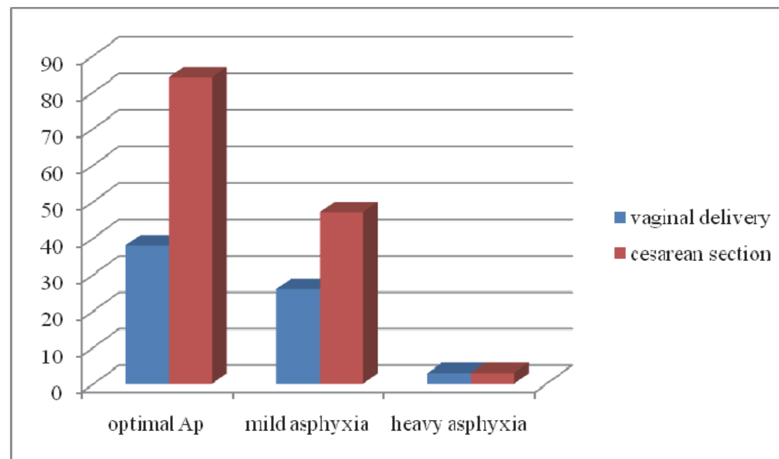

Chart no. 2: The condition of a newborn at birth depending on the method of delivery

References

1. Cvetković M, Stanković A. Karlična prezentacija. In: Dinulović, Dušan. Opstetricija, Službeni list SRJ, Beograd; 1996.
2. Cunningham G, Leveno K, Bloom S, Hauth J, Rouse D, Spong C. Williams obstetrics, 23rd ed. McGraw Hill Professional, New York; 2010.
3. Jadoon S, Khan Jadoon SM, Shah R. Maternal and neonatal complications in term breech delivered vaginally. JCPSP-J Coll Physici 2008; 18(9): 555-8. [PubMed]
4. Gifford DS, Morton SC, Fiske M, Kahn K. A meta-analysis of infant outcomes after breech delivery. Obstet Gynecol 1995; 85(6): 1047-54. [CrossRef] [PubMed]
5. Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomized multicentre trial. Term Breech Trial Collaborative Group. Lancet 2000; 356(9239): 1375-83. [CrossRef] [PubMed]
6. Dars S, Malik S, Bhurgri A. Is breech still being delivered vaginally? A comparative study. Int J Reprod Contracept Obstet Gynecol 2014; 3(1):144-8. [CrossRef]
7. Belfrage P, Gjessing L. The term breech presentation. A retrospective study with regard to the planned mode of delivery. Acta Obstet Gyn Scan 2002; 81(6): 544-50. [CrossRef]
8. Royal College of Obstetricians and Gynaecologists. The management of breech presentation. Guideline no 20b; 2006.
9. ACOG Committee on Obstetric Practice. Committee opinion No. 340. Mode of term singleton breech delivery. Obstet Gynaecol 2006; 108(1): 235-7. [CrossRef] [PubMed]
10. Fatušić Z, Ljuca Dž, Grgić G, Hudć I. Akušerski stav kod porođaja sa karličnom prezentacijom. Medicinski glasnik 2007; 4(1): 21-5.
11. Borlja-Mijailović R, Skender M, Avramović Lj, Pavlović-Raičević M, Dukić A, Ljubić V. Porođaj kod prednjačeće karlice ploda - izazov u savremenom akušerstvu. Materia medica 2012; 28(3): 665-72.
12. Golfier F, Voudoyer F, Ecochard R, Champion F, Audra P, Raudrant D. Planned vaginal delivery versus elective caesarean section in singleton term breech presentation: a study of 1116 cases. Eur J Obstet Gyn R B 2001; 98(2): 186-92. [CrossRef] [PubMed]
13. Michel S, Drain A, Closset E, Deruelle P, Ego A, Subtil D. Evaluation of a decision protocol for type of delivery of infants in breech presentation at term. Eur J Obstet Gyn R B 2011; 158(2): 194-8. [CrossRef] [PubMed]
14. De Leeuw J, De Haan J, Derom R, Thiery M, van Maele G, Martens G. Indications for caesarean section in breech presentation. Eur J Obstet Gyn R B 1998; 79(2); 131-7. [CrossRef] [PubMed]
15. Kalinović D, Milošević LJ, Perišić D, Najdanović-Mandić V. Karlični porođaj i pomoć akušera. Timočki medicinski glasnik 2005; 30(3): 106-8.
16. Erkkola R. Controversies: selective vaginal delivery for breech presentation. J Perinat Med 1996; 24(6): 553-61. [PubMed]
17. Ribić N, Drljević K, Granić A, Karahasan H, Ali MZ. Porodi zatkom u Kantonskoj bolnici Zenica u petogodišnjem periodu (1999-2003. godine). Medicinski glasnik 2005; 2(1): 22-6.
18. Babović I, Plešinac S, Radojičić Z, Opalić J, Argirović R, Mladenović- Bogdanović Z, et al. Vaginalni porođaj vs carski rez u terminskom karličnom porođaju. Vojnosanit pregl 2010; 67(10): 807-11.
19. Gilbert W, Hicks S, Boe N, Danielsen B. Vaginal versus cesarean delivery for breech presentation in California: a population-based study. Obstet Gynecol 2003; 102(5): 911-7. [CrossRef] [PubMed]
20. Albrechtsen S, Rasmussen S, Reigstad H, Markestad T, Irgens LM, Dalaker K. Evaluation of a protocol for selecting fetuses in breech presentation for vaginal delivery or cesarean section. Am J Obstet Gynecol 1997; 177(3): 586-92. [CrossRef] [PubMed]
21. Mahmood TA. The influence of maternal height, obstetrical conjugate and fetal birth-weight in the management of patients with breech presentation. Aust NZ J Obstet Gyn 1990; 30(1): 10-4. [CrossRef] [PubMed]
22. Alarab M, Regan C, O'Connell MP, Keane DP, O'Herlihy C, Foley ME. Singleton vaginal breech delivery at term: still a safe option. Obstet Gynecol 2004; 103(3): 407-12. [CrossRef] [PubMed]

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POROĐAJI SA KARLIČNOM PREZENTACIJOM U ZDRAVSTVENOM CENTRU ZAJEČAR U PERIODU OD 2004. DO 2013. GODINE

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Cilj studije bio je da prikaže učestalost karlične prezentacije ploda i način završavanja trudnoće, faktore koji određuju način porođaja i uticaj načina porođaja na neonatalni ishod. Retrospektivno su analizirani porođaji sa karličnom prezentacijom koji su obavljeni u Ginekološko-akušerskoj službi Zdravstvenog centra Zaječar u desetogodišnjem periodu od 1.1.2004. godine do 31.12.2013. godine. Praćeni su paritet, godine starosti majke, telesna masa ploda na rođenju, stanje ploda na rođenju (Apgar skor u prvoj minuti) i način završavanja porođaja (vaginalni put i carski rez).

U posmatranom periodu bilo je ukupno 5 475 porođaja sa 211 porođaja u karličnoj prezentaciji, što je 3,85%. Vaginalnim putem je porođeno 74 (35,1%), a carskim rezom 137 (64,9%) trudnica. Istraživanje je pokazalo statistički značajnu razliku u paritetu sa većom učestalošću prvorotki u grupi porođenoj carskim rezom od višerotki (2 =26,041, df=1, p<0,001), kao i u telesnoj masi ploda porođenih carskim rezom u odnosu na porođene vaginalno (t=5,614, df=209, p<0.001). Starost majke nije statistički značajna u grupi porođenih vaginalno u odnosu na porođene carskim rezom (t=0,277, df=209, p>0,05).

Ne postoji statistički značajna razlika između vrednosti Apgar skora novorođenčadi prvorotki i višerotki (U=5064,500, p>0,05), ali je značajno viša vrednost Apgar skora novorođenčadi rođenih carskim rezom u odnosu na novorođenčad rođenih vaginalnim putem (U=4094,500, p<0,05).

Analiza je pokazala da je carski rez dominantan način završavanja trudnoće sa karličnom prezentacijom ploda. Carski rez je češći kod prvorotki nego kod višerotki i daje bolju vitalnost novorođenčadi na rođenju u odnosu na vaginalni porođaj kod karlične prezentacije. Novorođenčad rođena carskim rezom ima značajno veću porođajnu masu. Acta Medica Medianae 2016;55(1):21-25.

Ključne reči: *karlična prezentacija, vaginalni porođaj, carski rez*

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