

The cesarean rates and indications between 2010 and 2014 in the Obstetrics Department of Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital

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Abstract

Objective: World Health Organization (WHO) declared cesarean section rate decreasing maternal and fetal mortality as 10–15%. The cesarean rates gradually increase and the ministries of health try to get under control these rates by various policies. The cesarean rate increased from 5% to 45% in Turkey from 1988 to 2010. Turkish Ministry of Health and Turkish Society of Obstetrics and Gynecology (TJOD) have aimed to decrease cesarean rate to 35% in 2013. This study aims to investigate and evaluate cesarean rates and the most common cesarean indications of 2010–2014 in Ankara Dr. Zekai Tahir Burak Maternal Health Training and Research (ZTB) Hospital which is a tertiary maternity and obstetrics hospital.

Methods: The archive records of the patients who delivered in the obstetrics department of ZTB Hospital between 2010 and 2014 were investigated to determine the number of cesarean section and cesarean indications.

Results: Between 2010 and 2014, 64,154 deliveries occurred in ZTB Hospital. Of them, 23,200 were cesarean section. Mean cesarean rate of five years was found as 36.2 ± 3.96%. When cesarean indications were evaluated, the most common 10 reasons of cesarean section were found as previous single or multiple cesarean section (50.9%), cephalopelvic disproportion (16.5%), fetal distress (12.1%), breech presentation (7.7%), non-progressive labor (3.2%), macrosomic baby (≥4000 g for the fetus of diabetic pregnant women, and ≥4500 g for other pregnant women), malpresentation (face, foot, deflection presentation etc.; except breech presentation, 1.6%), and cord prolapsus (0.8%). The greatest portion of cesarean section indications is the previous cesarean section, which is 50.9%.

Conclusion: We found that the mean cesarean rate (36.2%) for 2010–2014 in the obstetrics department of our hospital was close to the rate (35%) aimed by TJOD and the Ministry of Health in 2013. In order to decrease cesarean rates in Turkey to the level (15%) determined by WHO, further studies, the implementation of obstetric guideline recommendations through the joint works of the Ministry and the society in Turkey and additional briefing of pregnant women and Turkish obstetricians are required.

Keywords: Cesarean, indication, rate, vaginal delivery.

Özet: Dr. Zekai Tahir Burak Kadın Sağlığı Eğitim ve Araştırma Hastanesi Doğum Ünitesi'nde 2010–2014 sezaryen oranları ve endikasyonları

Amaç: Dünya Sağlık Örgütü (DSÖ) maternal ve fetal mortaliteyi azaltan sezaryen ameliyat oranını %10–15 olarak açıklamıştır. Sezaryen oranları giderek artmakta ve sağlık bakanlıkları, politikalarla bu oranları kontrol altında tutmaya çalışmaktadır. 1988'den 2010'a kadar Türkiye'de sezaryen oranı %5'ten %45'e yükselmiştir. T.C. Sağlık Bakanlığı ile Türk Jinekoloji ve Obstetrik Derneği (TJOD), sezaryen oranını 2013'te %35'e düşürmeyi amaçlamışlardır. Bu çalışma, üçüncü basamak kadın sağlığı ve doğum hastanesi olan Ankara Dr. Zekai Tahir Burak Kadın Sağlığı Eğitim ve Araştırma (ZTB) Hastanesi'nde, 2010–2014 sezaryen oranları ile en sık sezaryen endikasyonlarının araştırılması ve incelenmesini amaçlamaktadır.

Yöntem: ZTB Hastanesi'nde 2010–2014 yılları arasında doğum ünitesinde doğum yapan hastaların arşiv kayıtları, sezaryen sayısının saptanması ve sezaryen endikasyonlarının belirlenmesi amacıyla tarandı.

Bulgular: 2010–2014 yılları arasında ZTB Hastanesi'nde 64.154 doğum gerçekleşmiştir. Bunların 23.200'ü sezaryen ile doğumdur. Beş yılın ortalama sezaryen oranı %36.2±3.96 olarak hesaplanmaktadır. Sezaryen endikasyonları incelendiğinde, sezaryen ameliyatının en sık 10 sebebinin sırasıyla önceden geçirilmiş bir veya birden çok sezaryen ameliyatı (%50.9), baş-pelvis uyumsuzluğu (%16.5), fetal distres (%12.1), makat prezentasyon (%7.7), ilerlemeyen eylem (%3.2), makrozomik bebek (diyabetik gebe fetüsü için ≥4000 g, diğer gebelerde ≥4500 g; %2.0), malprezentasyon (yüz, ayak, defleksiyon prezentasyon vb.; makat prezentasyon hariç, %1.6) ve kordon prolapsusu (%0.8) olduğu görülmektedir. Sezaryen ameliyat endikasyonlarının en büyük kısmını, %50.9 oranla, önceden geçirilmiş sezaryen ameliyatı oluşturmaktadır.

Sonuç: Hastanemiz doğum ünitesi 2010–2014 sezaryen oranları ortalamasının (%36.2), 2013'te TJOD ve Sağlık Bakanlığı tarafınca planlanan hedefe (%35) yakın olduğu görülmektedir. Türkiye'de sezaryen oranını DSÖ tarafından belirlenen hedefe (%15) düşürmek için, ek çalışmaların yapılması, obstetrik rehber önerilerinin bakanlık ve dernek ortak çalışmaları ile Türkiye'de uygulanması ve Türk obstetrisyenleriyle gebelerin ileri bilgilendirilmesi gerekmektedir.

Anahtar sözcükler: Sezaryen, endikasyon, oran, vajinal doğum.

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Introduction

It is known that cesarean section is a method developed to help the babies of deceased mothers to survive, to bury deceased mother and baby separately in accordance with religious beliefs or to help mothers to survive through an alternative method which are concluded that the babies cannot be delivered vaginally.^[1] Today, cesarean sections are carried out with many medical indications such as placenta previa, ablatio placentae, cord prolapsus etc. On the other hand, it is also known that cesarean section is performed on maternal demand. This caused normal delivery rate to decrease globally.

World Health Organization (WHO) asserts that the cesarean rate which will decrease maternal and fetal mortality has been 10–15% since 1985 and that there is no evidence showing that cesarean rates above 15% decrease maternal or newborn mortality.^[2] It is seen in the last three decades that the cesarean rates in Turkey change by years but tend to increase. The cesarean rate which was 5% in 1988 was over 45% in 2010.^[3] With the joint project of Turkish Society of Obstetrics and Gynecology (TJOD) initiated in 2011, it was aimed to decrease cesarean rate in 2013 to 35% in Turkey.^[4] While it is obvious that the improvement in this field can be achieved by cooperation with all healthcare organizations, reference central obstetric training and research hospitals, which offer public service and some also providing healthcare to high risk patient group, have the highest responsibility. The purpose of this study is to investigate cesarean rates at Ankara Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital between 2010 and 2014 and to determine basic cesarean indications.

Methods

The archive records of the patients who were hospitalized at the obstetrics service and delivered between 01.01.2010 and 31.12.2014 at Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital were reviewed in order to determine the number of cesarean cases and cesarean indications. The arithmetic mean and standard deviation of numerical data were calculated. The data were presented as definitive tables and graphs. The patients transferred to High Risk Pregnancy Service for delivery due to additional morbidity during labor were excluded from the study.

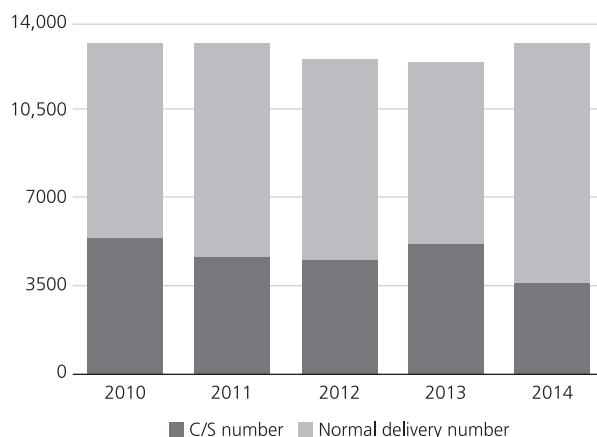


Fig. 1. Vaginal delivery and cesarean rates in years between 2010 and 2014 at Ankara Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital.

Results

It was found in the archive investigation that 64,154 deliveries occurred at our hospital between 2010 and 2014. Of them, 23,200 were cesarean section. It is seen that cesarean rates change by years (**Fig. 1**). Mean cesarean rate of 5 years was calculated as $36.2 \pm 3.96\%$ (**Table 1**).

When cesarean indications were evaluated, the most common 10 reasons of cesarean section were found as previous single or multiple cesarean section (50.9%), cephalopelvic disproportion (CPD, 16.5%), fetal distress (12.1%), breech presentation (7.7%), non-progressive labor (3.2%), macrosomic baby (≥ 4000 g for the fetus of diabetic pregnant women, and ≥ 4500 g for other pregnant women), malpresentation (face, foot, deflection presentation etc.; except breech

Table 1. Cesarean rates in years between 2010 and 2014 and mean cesarean rate for these years at Ankara Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital.

Years	Delivery number	Cesarean number	Normal delivery number	%
2010	13,091	5349	7742	40.8
2011	13,111	4632	8479	35.3
2012	12,461	4486	7975	36.0
2013	12,387	5142	7245	41.5
2014	13,104	3591	9513	27.4
Total	64,154	23,200	40,954	Mean 36.2%

presentation, 1.6%), and cord prolapsus (0.8%) (Table 2). The greatest portion of cesarean section indications is the previous cesarean section, which is 50.9%.

Discussion

Mean cesarean rate at our hospital is $36.2 \pm 3.96\%$ between 2010 and 2014. This mean is lower than 45% which is the mean cesarean rate of Turkey for the last 5 years and it can be said that it is close to 35% which is the level aimed by the Ministry of Health and TJOD. When analyzed, it is seen that there is a decrease in cesarean rates as a general tendency, but this decrease has no regular pattern in the last 5 years (Fig. 1). While the highest cesarean rate in the 5 years is 41.5%, the lowest rate is 27.4% (Table 1).

The greatest portion of cesarean section indications is the previous cesarean section, which is 50.9%. Therefore, while cesarean section is decided in multiparous patients with primigravid or normal delivery history, reviewing cesarean indications for a second time will be useful to decrease cesarean rates in the very beginning. If vaginal delivery after cesarean is offered and supported with all risks and advantages to patients who have cesarean section history (by paying attention to maternal and neonatal health conditions), the rate of cesarean due to previous cesarean section may be decreased. In the study of Costa et al., cesarean rates in Portugal between 2005 and 2011 were compared and it was stated that the decrease seen depends on this policy.^[5]

Cesarean rate on maternal demand in the USA is between 1 to 7%.^[6,7] It was seen in China, which is one of the countries with highest cesarean rates where cesarean rate was declared as 58% in 2010, that cesarean indication on maternal demand was increasing cesarean rate significantly.^[8] Cesarean rate of Turkey being lower than of China can be explained with the fact that maternal demand is not a cesarean indication in public hospitals. The results of the studies reporting cesarean indications in China show similarity with the results of our study when maternal demand is overlooked.^[8]

In a Cochrane review entitled "Non-clinical Interventions for Reducing Unnecessary Caesarean Section" in 2011, it was shown that cesarean rates were decreased by the childbirth classes provided to preg-

Table 2. The most common cesarean indications in years between 2010 and 2014 at Ankara Dr. Zekai Tahir Burak Maternal Health Training and Research Hospital.

Indications	Number	%
Second cesarean section	8755	37.8
Head-pelvis disproportion	3831	16.5
Fetal distress	3199	13.8
Third cesarean section	2630	11.3
Breech presentation	1779	7.7
Non-progressive labor	737	3.2
Macrosomic baby	468	2.0
Fourth cesarean section	430	1.8
Malpresentation	367	1.6
Cord prolapsus	171	0.8

nant women.^[9] It can be said that a drop in the cesarean rates is seen with the help of classes, especially the childbirth class, given by Pregnancy School which started to offer service in our hospital in the beginning of 2014. Because the lowest cesarean rate of our hospital was seen in 2014 with the rate of 27.4% and it was below 35% which was the level aimed by TJOD and the Ministry of Health.

According to our study, the most common indication in the patients without any previous cesarean section is CPD. It is also one of the major indications for primary cesarean section in the USA.^[10] In a workshop carried out by American College of Obstetricians and Gynecology (ACOG) and National Institute of Child Health and Human Development (NICHD) in 2012, it was asserted that there is an increase in cesarean rates due to not waiting enough by obstetricians when establishing the diagnosis of cephalopelvic disproportion.^[10] Considering the fetomaternal well-being, informing obstetricians to give necessary time may cause a significant decrease in cesarean rates.

The pregnant women in labor are monitored continuously by fetal tococardiography in our hospital. There are studies reporting that the cesarean rates of pregnant women under continuous monitorization are significantly higher than those not under continuous monitorization.^[11,12] Delivering fetuses by cesarean section who are not really under stress but established fetal distress diagnosis due to false positivity for fetal distress increases cesarean rates.^[13]

It is known that increased cesarean rates lead to increase in fetal mortality and admission rates to new-

born unit.^[14] However, there are also studies which found that ending pregnancies with breech presentation by planned cesarean section decreases neonatal mortality and morbidity.^[15,16] It was reported in a meta-analysis published in 2016 that ending pregnancies with breech presentation by vaginally is more risky than cesarean section but this risk is not high and that it can be made a decision for an individual delivery method customized for patient.^[17] In our hospital, pregnant women with breech presentation during delivery are informed about perinatal-neonatal mortality and morbidity risks of vaginal delivery and that such risks are lower in cesarean section. Under the patient consent, it is preferred to deliver these pregnancies by cesarean section. Therefore, we distinguished breech presentation from malpresentation in our study and found that it was alone 7.7% of cesarean indications. The recommendations of ACOG guidelines also support to recommend cesarean section to pregnant women upon informing.^[18] In our study, breech presentation is among the first 10 reasons affecting cesarean rates.

Among the cesarean indications found in our study, non-progressive labor is the sixth common indication. In a study performed in the USA, it was seen that the elevated rates in elective labor inductions applied during “at term premature (37 weeks – 38 weeks and 6 days) pregnancy” increase the rates of non-progressive labor and cause increased cesarean rates secondarily.^[13,19] Diagnosis criteria for non-progressive labor during the first phase of delivery were determined in the Consensus of Safe Prevention of the Primary Cesarean Delivery held by ACOG in 2014. Accordingly, cesarean section should be planned by establishing non-progressive labor diagnosis in patients with amniotomy or membrane rupture, 6 cm dilatation, having 4-hour sufficient uterine activity or without any progress in cervical dilatation despite at least 6-hour oxytocin induction when insufficient uterine activity was found.^[20] However, it was shown in the research conducted by National Sentinel Cesarean Section Audit (NSCSA) that 17% of non-progressive labor diagnosis was established to the pregnant women whose cervical dilatation was not reached to 4 cm yet.^[13] In the light of the data obtained from here, cesarean rates can be reduced by determining gestational age in labor induction carefully, considering that cesarean section risk increases if elective induction is performed during at term premature period, and lastly, following

the criteria recommendations of the guidelines such as ACOG etc. when planning cesarean section upon the diagnosis of non-progressive labor.

In our hospital, we consider that fetuses of diabetic mothers estimated to have fetal weight as 4000 g and the fetuses of other mothers as 4500 g and above are macrosomic fetuses, and we recommend cesarean such pregnant women to prevent possible vaginal labor complications (shoulder dystocia etc.). ACOG bulletins recommend to establish macrosomic fetus diagnosis when the fetuses of diabetic mothers are 4500 g and the fetuses of other mothers are 5000 g and above, and to plan cesarean section in such cases.^[21] Therefore, cesarean rate due to macrosomic fetus diagnosis may be higher in our hospital than other institutions following ACOG recommendations.

Other recommendations of international guidelines to decrease cesarean rates are to try external cephalic version in breech presentations after 36 weeks of gestation, provide continuous support during labor, use partogram at intervals during labor follow-up, and conduct fetal blood sampling before planning cesarean section when abnormal cardiotocography is observed.^[9,22]

The cesarean rate in 2008 is 38% and it was reported in the study performed by Barbadoro et al. in Italy, which has the highest cesarean rate in the European Union, that cesarean rate is higher in southern regions and in women above 35-year-old.^[23] Starting from these data, determining the groups in Turkey with high cesarean rates and ensuring to take special precautions for such groups may help to decrease cesarean rates to the optimal levels.

Conclusion

We found that the mean cesarean rate (36.2%) for 2010–2014 in the obstetrics department of our hospital was close to the rate (35%) aimed by TJOD and the Ministry of Health in 2013. In order to decrease cesarean rates in Turkey to the level (15%) determined by WHO, further studies, the implementation of obstetric guideline recommendations through the joint works of the Ministry and the society in Turkey and additional briefing of pregnant women and Turkish obstetricians are required.

Conflicts of Interest: No conflicts declared.

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