

# Birth Rates and Cesarean Indications at Selçuk University During Five -Year Period

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**OBJECTIVE:** The aim of the study is to evaluate the rates, indications and complications of cesarean sections (CS) in our hospital during 5 years.

**STUDY DESIGN:** Patients who gave birth between January 2004 and December 2008 in our clinic were enrolled in this study and retrospectively analyzed. The CS rates, its complications, indications, and maternal mortality and morbidity rates were studied.

**RESULTS:** The total number of births in five years was 11121. Of these births, 4818 (43.32%) were vaginal births and the remaining 6303 (56.67%) were cesarean deliveries. Previous cesarean deliveries were the major indication with 2118 (33.6%) cases, fetal distress with 880 (13.96%) cases, elective cesarean with 715 (11.34%) and cephalo-pelvic disproportion (CPD) with 622 (9.86%) cases. Eight cases of maternal mortality were detected in CS group (12.69/10000). The morbidity rate was found to be 12%.

**CONCLUSIONS:** The rates of cesarean deliveries are increasing day by day. The increased rates of previous cesarean deliveries are a critical factor for the risks of recurrent surgeries and cost-effectiveness. We concluded that to determine the real indications for primary cesarean deliveries and to be more selective and careful are assumed to decrease the cesarean delivery rates.

**Key Words:** Cesarean section, Cesarean rates, Indications of cesarean section.

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## Introduction

Childbirth is a profound and powerful human experience. It is possible that the experience of giving birth may contribute to a woman's ability to adapt to parenthood. Women giving birth in a supportive environment have been shown to have greater self-esteem, confidence in themselves as mothers, more positive child-rearing practices and less anxiety and depression after birth.<sup>1</sup>

Cesarean section (CS) is a kind of surgical technique in which fetus, placenta and its membranes are delivered by uterine incision following laparotomy.<sup>2</sup> CS is performed for certain medical indications such as placenta previa or transverse lie; CS can be a life-saving operation. A CS is medically indicated

when a significant risk of adverse outcome for mother or baby is present if the operation is not performed at a given time.<sup>3</sup>

CS rates are progressively rising in many parts of the world. One suggested reason is increasing requests by women for CS in the absence of clear medical indication. Non-medically indicated cesarean sections may be performed for reasons other than the risk of adverse outcome if the person(s) assessing risk feel it is outweighed by the physical or psychological benefits. It has been suggested, for example, that a proportion of women, who request CS for no apparent medical reason, may actually have been influenced by previous or current psychological trauma such as sexual abuse or a previous traumatic birth. These may be regarded as clinical indications.<sup>4</sup>

Cesarean deliveries had been gradually increased since 1800's. Morbidity and mortality were high in the initial CS. However, today these rates are decreased by improvements in surgical techniques, anesthesia, homeostasis, asepsis, antibiotics and blood transfusions.<sup>5</sup>

In 1985 the World Health Organization (WHO) stated: 'There is no justification for any region to have CS rates higher than 10-15%.<sup>6</sup> Rising rates of cesarean delivery are a major public health concern. In recent years, the proportion of women attempting vaginal birth after cesarean has declined.

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Hence, rates of primary cesarean delivery will become an increasingly important determinant of overall cesarean rates.<sup>7</sup>

## Material and Method

Patients who gave birth between January 2004 and December 2008 in Selcuk University, Meram Medical Faculty, Obstetrics and Gynecology Clinic were enrolled in this study and retrospectively analyzed. 11121 patients who gave birth in this period. The normal vaginal deliveries rates, the CS rates, its complications, indications, the patient's mortality and morbidity rates were studied.

## Results

The total number of births was 11121 between January 2004 and December 2008 in our hospital. Of these births, 4818 (43.32%) were vaginal births and the remaining 6303 (56.67%) were cesarean deliveries. Total CS rates were calculated as 56.67%. 2118 (33.60%) cases of all cesarean deliveries were multiple or single previous cesarean. The age, gravity, parity, and gestational age of the patients were detected as 29.36±5.4, 3.66±1.3, 2.51±1.4 and 36.34±2.9 week respectively.

When we analyzed the annual rates of caesarean sections and vaginal deliveries we noted an increase in caesarean section rates from 2004 toward 2008 accompanied by decrease in vaginal delivery rates (Table 1).

Table 1: The annual rates of cesarean section and vaginal delivery.

Year	CS n (%)	Vaginal delivery n (%)	Total n (%)
2004	973 (46.91)	1101 (53.08)	2074 (100)
2005	1093 (50.88)	1055 (49.11)	2148 (100)
2006	1221 (54.60)	1015 (45.39)	2236 (100)
2007	1338 (57.54)	987 (42.45)	2325 (100)
2008	1363 (58.29)	975 (41.70)	2338 (100)
Total	6303 (56.67)	4818 (43.32)	11121 (100)

Abbreviation: CS, cesarean sections

The most common indications of CS were detected as multiple or single previous CS with 2118 (33.60%) cases, fetal distress with 880 (13.96%) cases, elective cesarean 715 (11.34%) cases, cephalo-pelvic disproportion (CPD) with 622 (9.86%) cases, pregnancy after an infertile period and infertility treatment with 401 (6.36%) cases, multiple pregnancy with 296 (4.69%) cases, preeclampsia, eclampsia, HELLP Syndrome with 293 (4.64%) cases, abnormal presentation (breech, transverse) with 265 (4.20%) cases, failure at induction of labor (dysfunctional labor) with 206 (3.26%) cases respectively (Table 2).

Table 2: The indications of cesarean sections

Indication	n(6303)	%
Multiple or single previous cesarean section	2118	33.60
Fetal distress	880	13.96
Maternal requests (Elective cesarean)	715	11.34
Cephalo-Pelvic Disproportion (CPD)	622	9.86
Pregnancy after an infertility period	401	6.36
Multiple pregnancy	296	4.69
Preeclampsia + Eclampsia + HELLP Syndrome	293	4.64
Abnormal presentation (breech, transverse)	265	4.20
Failure of induction of labor (Dysfunctional labor)	206	3.26
Abruptio placenta	97	1.53
Dystocia (Brow, face, extremity presentation)	90	1.42
Placenta previa	67	1.06
Previous uterine surgery	65	1.03
Miscellaneous	188	2.98

Abbreviations: CS, cesarean sections; CPD, Cephalo-Pelvic Disproportion

Eight cases of maternal mortality were detected in our study in cesarean group (12.69/10000). Of these 8 mortalities, 4 were HELLP Syndrome, 2 were severe preeclampsia and 2 were heart failure disease patients. The morbidity rate was found to be 12%. Febrile morbidity was found as the most common (8%). Postoperative endometritis was detected in 68 (1.08%) cases. Urinary tract infection and wound infection were detected in 66 (1.04%) and 48 (0.76%) respectively. Eight of the patients who were performed previous cesarean had urinary bladder injury during surgery.

## Discussion

CS is one of the most commonly performed operations. But it is important to be careful for its complications. The purpose of the cesarean surgeries is to protect lives of the mother and the baby. In addition, as maternal morbidity and mortality rates are higher than vaginal deliveries. The indications must be exact. Without exact indications, the benefits and the risks of cesarean sections must always be kept in mind.<sup>7</sup>

The International Federation of Gynecology and Obstetrics (FIGO) correctly stated that 'FIGO considers surgical intervention without a medical rationale to fall outside the bounds of best professional practice. Cesarean delivery should be undertaken only when indicated to enhance the well-being of mothers and babies and improve outcomes'. The FIGO at the same time states that "women should not be denied access to cesarean delivery when needed, for want of funds or infrastructure; neither should they be placed under pressure to have a cesarean birth because of a lack of professional care to support a normal labor and delivery."<sup>8</sup>

The rates of the cesarean sections have been increased in the last decades. CS is one of the most commonly performed

operations in USA. Because of this, the cost-effectiveness of CS is important. In the last fifteen years, the rates of CS have been started to increase. Although in 1970's the rate of CS was 5.5%, in 1996 and 2004 it was detected as 20.7% and 29.1% respectively.<sup>9,10</sup> In a study by Florica et al. performed in Switzerland, it was reported that the rates of CS was increased from 13.8% to 18.1% in years between 1994 to 1999.<sup>11</sup> Betran et al. in 2007 analyzed the global rate of CS and it was estimated as 15%. Rates were higher in developed countries and in Latin America and the Caribbean, but lower in other developing countries.<sup>12</sup>

In our country as the data collection system is not sufficient, hence the rates of the CS are not exactly known. When only hospital births were considered, the percentage of Cesarean deliveries for the year 1998 was found to be 26.1%. The estimated rate for the year 2001 was around 30% (i.e. double the maximum rate of Cesarean sections defined by the WHO).<sup>13</sup> In a study by Yalinkaya et al. from Dicle University between 1983 and 2002, the rates of CS was found as changing from 17.22% to 52.39% and they concluded that these rates have been increasing with time.<sup>14</sup> In the last five year, the rate of CS was found as 56.67% at our clinic. We assumed that this is a high rate of CS. The high rate of CS in our centre may not reflect the real incidence of CS in our country because our centre is a tertiary centre that receives many referred complicated cases from peripheral towns and neighboring cities.

We detected the most common CS indications as multiple or single previous cesarean 33.60%, fetal distress 13.96%, elective cesarean 11.34%, CPD 9.86%, multiple pregnancy 4.69%, preeclampsia, eclampsia and HELLP Syndrome 4.64%, abnormal presentation (breech, transverse) 4.20% and failure at induction of labor (dysfunctional labor) 3.26%. Multiple or single previous cesarean sections are comprised 35% of all cesarean deliveries in USA.<sup>15</sup> In a study by Notzon et al. in 1994, they showed that cesarean sections performed because of previous CS and dystocia comprise approximately half of all cesarean deliveries in USA and western European countries.<sup>16</sup> In a study by Yalinkaya et al. multiple or single previous CS, elective CS and fetal distress was found as the most increased indications, and they reported that while previous CS rate was under 20% until 1994, it was gradually increased from 1995 and reached up to 30.18% in 2002. They detected that the rate of elective CS increased to 14.01% from 1.63%, the rate of CS because of fetal distress increased to 15.86% from 5.89% .<sup>14</sup>

Maternal morbidity rates are higher than vaginal deliveries in CS. The most common causes of the maternal morbidity are endomyometritis, bleeding, urinary tract infections and thromboembolism. Morbidity is especially much higher in obese patient.<sup>17</sup> Intraoperative complication increased the morbidity of CS. These complications occur especially in emergency cases.

Ureter, urinary bladder or intestine injuries may be encountered rarely. This kind of injuries was seen more in patients who had intra-abdominal adhesions because of previous CS.<sup>18</sup> In our study the morbidity rate was found as 12%. Febrile morbidity was detected as the most common with 8%. Postoperative endometritis, urinary tract infection and wound infection rates were detected as 1.08%, 1.04%, and 0.76% respectively. Eight of the patients with previous cesarean had bladder injury during surgery.

Leone et al. studied the community factors affecting rising CS rates in 6 countries they found that advice from social networks and exposure to health care systems have an impact on the risks of a CS birth. The results demonstrated that health service factors were important predictors of a cesarean birth. They further found that women from the wealthier strata use health care services more often and have a much higher risk for a cesarean delivery than poorer women.<sup>19</sup>

Smith et al. in their study defined delaying childbirth as significant contributing factor to the rising rates of intra-partum primary cesarean delivery. The association between increasing maternal age and the risk of intra-partum cesarean delivery is likely to have a biological basis.<sup>20</sup> As a growing proportion of women delay childbearing into their later reproductive years, the risks and costs associated with advancing maternal age become increasingly important.<sup>21</sup> Extensive evidence shows that both obstetric interventions and obstetric complications are more common among older women, and it is often assumed that the interventions are a consequence of the complications. Delivery by CS is one such intervention that is associated with maternal age and is of importance for public health.<sup>22</sup> Marwick et al. in their study found that women who are having a repeat CS explain some of the increase, but a steady increase is still present in women who have not had a previous CS.<sup>23</sup>

## Conclusion

The rates of cesarean deliveries are increasing day by day. Increase in multiple or single previous CS rates, spread usage of antenatal diagnosis techniques, pregnant and obstetricians who are showing inclination to elective CS because of various reasons had been increased the rate of CS in recent years. The increased rates of previous cesarean deliveries are a critical factor for the risks of recurrent surgeries and cost-effectiveness. We concluded that to determine the real indications for primary cesarean deliveries and to be more selective and careful are assumed to decrease the cesarean delivery rates.

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**Selçuk Üniversitesinde Beş Yıllık Doğum Oranları ve Sezaryen Endikasyonları**

**AMAC:** kliniğimizde 5 yıllık sürede yapılan sezaryen oranları, endikasyonları ve komplikasyonlarını değerlendirmek.

**GEREÇ VE YÖNTEM:** Kliniğimizde Ocak 2004 ile Aralık 2008 tarihleri arasında doğum yapan hastalar retrospektif olarak incelendi. Sezaryen oranları, komplikasyonları, endikasyonları, maternal mortalite ve morbidite oranları incelendi.

**BULGULAR:** Çalışmamızda 5 yılda kliniğimizde toplam doğum sayısı 11121 idi. Bunun 4818'ini (%43,32) vajinal doğumlar, 6303'ünü (%56,67) sezaryenler oluşturuyordu. Sezaryen endikasyonlarından eski sezaryen 2118 (%33,6) vaka ile başı çekmekte idi, fetal distres 880 (%13,96), elektif sezaryen 715 (%11,34) ve baş-pelvis uyumsuzluğu (CPD) nedeniyle 622 (%9,86) hastaya sezaryen yapıldı. Çalışmamızda sezaryen olan hastalarda 8 maternal mortalite vakası saptandı (12,69/10000). Morbidite oranı %12 olarak bulundu.

**SONUÇ:** Sezaryen oranları her geçen gün artmaktadır. Eski sezaryen oranının giderek artması, tekrarlayan operasyon riskleri ve maliyeti konusunda endişe vericidir. Primer sezaryen endikasyonlarının belirlenmesinde daha dikkatli ve seçici davranılmasının sezaryen oranlarını azaltacağı kanısındayız.

**Anahtar Kelimeler:** Sezaryen, Sezaryen oranları, Sezaryen endikasyonları

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