

Full Length Research Paper

Determinants of Increasing Cesarean Section Rates: A Retrospective Hospital-Based Study

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Cesarean section is a surgical procedure which allows the child to birth through uterus incision. Cesarean birth is a procedure that gives resolve problems such as maternal and fetal complications. To study the incidence of cesarean birth, 1982 to 2000 with 2011 to 2013 years were compared to determine indications that contribute to the trend of the increasing number of cesarean deliveries. We studied the clinical charts of 2011 to 2013 from the statistic department of Maternity Hospital "Koço Gliozheni" Tiranë, Albania. For statistical analysis, Statistical Package for the Social Science (SPSS) 11.5 package was used. This is a descriptive study and values will be presented in frequency and percentage. Study of clinical charts of 2011 to 2013 resulted in an average rate of cesarean deliveries of approximately 32.3%. In the year 1982 to 1984, the percentage of cesarean birth was approximately 8.7%, while in 1999 to 2000 the percentage of cesarean birth was approximately 21.7%. Indications that are most important in this study that have contributed to an increase in the number of cesarean births are preeclampsia (9.2%), fetal suffering (13.9%), premature rupture of membranes (9.8%) and the indication which has greater influence in the rising rate of cesarean delivery is previous cesarean births (36.5%). The most frequent reasons for cesarean births in the center where the study was conducted for years January, 2011 till December, 2013 are: previous cesarean section, preeclampsia, fetal suffering. So, previous cesarean births are the most important factor in making decisions about the way of delivery, while in 1982 to 1984 the important factor was fetal suffering. Previous cesarean birth and multiple pregnancies (due to the increased number of in vitro fertilization) represent a growing trend. However, this high percentage of cesarean births in our center is unwarranted, so physicians should be very careful when they select patients for cesarean section. Careful monitoring of the fetus will help in reducing cesarean birth rate in our hospital.

Key words: Cesarean section, fetal and maternal complications, maternal indications, fetal indications.

INTRODUCTION

Cesarean birth means birth of the fetus through laparotomy and hysterotomy (Figures 1 and 2). It is a

common surgical procedure in Obstetrics and Gynaecology and has increased worldwide (Treffers and

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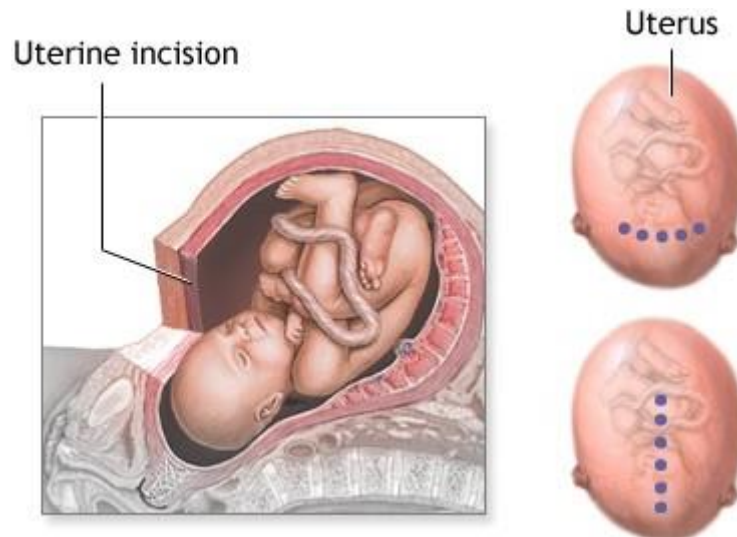


Figure 1. Cesarean performance



Figure 2. Scar appearance

Pel, 1993; Editorial 2000). The dictum "Once cesarean birth always cesarean birth" has prevailed for centuries. (Dake RD 1990). However we will see that late in the 1980s this dictum will lose its meaning (Yang et al., 2009). Cesarean birth is a procedure that gives resolve problems such as maternal and fetal complications.

Today in the world, there are many clinics which tend to control its frequency and to develop policies that work to reduce the number of cesarean births. While in some others the rate are extremely high. This example illustrates the Latin America (Althabe 2006; Abitbol et al., 1997; Belizan et al., 1999; Belizan et al., 2007; Villar et al., 2006) which refers to more than one third of births performed with cesarean section, especially in Brazil that in recent decades the number of cesarean birth presents the highest values compared to all other countries of the world. According to the National Health Survey, the incidence of cesarean birth in Brazil in 2006 was up to 43.6%, but in private clinics it was up to 80% (Tortoni et al., 2011).

Albania in the last decade, saw an increase rate of cesarean births which was approximately 31 to 33% (Glozheni 2008), somewhat unjustified (because it has not improved perinatal mortality, reason that can justify this increase in the number of cesarean births) but, even more increases the chances of complications (Althabe and Sosa, 2006; Belizan et al., 2006). Among these complications we can mention: infections (where women who perform the cesarean birth are 20 times more at risk of infections and infective disease than a woman who gave birth through the vaginal) (Conroy et al., 2012; Jido and Grarba, 2012; Sarsam et al., 2005; Smaill and Gyte, 2010), negative impact on breastfeeding (Kuguoglu et al., 2012; Parthasarathy and Rajah, 2011), hemorrhage, pulmonary embolism, urinary tract trauma, risk of uterine rupture in future pregnancies, etc. (Dumont et al., 2001, Grella PV et al., 2006). But why do we experience this global growth of cesarean section rate? Does this mean that women are becoming more powerless and impossible to perform vaginal birth? Does this mean that the

Cesarean section

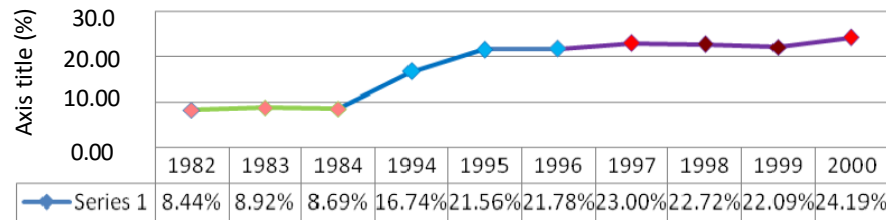


Figure 3. Cesarean section rate.

pelvis of women has become smaller and smaller by not allowing the baby to deliver? Does this mean that the midwives are getting better at recognizing dystocia and fetal distress? (Talbot 2014).

Techniques used in cesarean birth are few. (Althabe et al., 2011) Before 1984s, Albania used classic incision from that year onwards incision takes place in a low segment. (Theodhosi and Kosturi, 2001) Reasons for using this surgical procedure to give birth are much, they are: dystocia, placenta previa, fetal distress, umbilical prolapsed, uterine malformations, abnormal presentation of fetus, mother's decision-making, preeclampsia, in vitro fertilization (IVF) procedures etc. (Cunningham et al., 2005; Dunnihoo 1990; Grella et al., 1996; Ricci and Kyle, 2009; Humenick 2006; Davidson 2008). Many theories have tried to explain the upward trend of the number of caesarean births across the world (Humenik 2006), including our country too. The explanation of this trend include: a decrease in vaginal births after cesarean (VBAC), an increase in cesareans performed for maternal request, changes in provider practice patterns, increased number of high-risk expectant mothers and the obstetrical medicolegal environment (ACOG 2010; Barber et al., 2011).

This study is based on the collection of information from the clinical charts of the department of obstetrics. Reasons for physician and documented data in clinical charts help us to determine the causes of the increasing number of cesarean deliveries. In Albania, the number of cesarean delivery has been increasing and this is explained in the tables below. This chart shows how the percentages of cesarean delivery have changed over the years. So we see how has changed the incidence of cesarean delivery from 1983 to 2000. The mean incidence of cesarean section from 1982-1984 is 8.63% and fetal suffering was the main factor with approximately 46%. From 1994 and after, we see a significant increase of cesarean section rate (with 16.74% in 1994 to 24.19% in 2000). And for these seven years the mean of cesarean delivery is 21.73%. The most important factor that contributed in this period is previous cesarean section with 37%. (Theodhosi and Kosturi, 2001). Figure 3 shows how the percentage of cesarean delivery has changed over the years. Number of cesarean births is

calculated by considering the total number of live births for the years in the study.

METHODOLOGY

We studied the clinical charts from January, 2011 to December, 2013 from the statistic department of Maternity Hospital "Koco Gliozheni" Tiranë. Studies of all births were included in this study, specifying the way of birth. In cesarean births, all indications that influenced the realization of birth in this way were collected. So we analyzed the results of cesarean births from 1982 to 2000 and from 2011 to 2013 to see how the trend of cesarean delivery rate change. At the same time the indicators of cesarean delivery are analyzed to explore those factors that contribute most to the increasing number of cesarean birth form January, 2011 to December, 2013. Maternity Hospital "Koço Gliozheni" Tiranë, where the study was conducted is a Tertiary University Center covering a large urban area but also its surroundings. Indications that affect the cesarean birth were calculated for each year. For data analysis, SPSS 11.5 statistical package was used. This is a descriptive study and values will be presented in frequency and percentage.

RESULTS

Since January, 2011 to December, 2013 at the Maternity Hospital "Koço Gliozheni" Tiranë 13,483 babies were given birth to. 4,357 babies were given birth to through cesarean section which means that the rate of cesarean birth is 32.3%. So the cesarean birth rate stands over 30%. Table 1 and Figure 4 present some demographic and obstetrical data that we collected in our study. We see that in 2011 the percentage of cesarean births is 30.2%, in 2012 it increased to 33.9% and decreased to 32.9% in 2013. p- Value is < 0.005. Trend of cesarean deliveries in this center has been increasing except in 2013 which represent a slight decrease: so the incidence of cesarean delivery in 1982 to 1984 was 8.4%, in 1994 to 2000 it runs to 21.7%, and in 2011 to 2013 it fluctuate with an average of 32.3%. A very high percentage compared with what World Health Organization (WHO) recommends (Belizan et al., 1999; Gibbons et al., 2010). (Table 2) This statistical description helps us to establish a clear idea of the factors that have contributed most to the rising number of cesarean births in the center where the study is conducted from 2011 to 2013. So for

Table 1. Demographic and obstetrical data.

Variable	2011	2012	2013
	N=4509	N=4433	N=4541
	Frequency (%)	Frequency (%)	Frequency (%)
Skin colour			
White	3742 (83)	3502 (79)	4087(90)
Gipsy	767 (17)	665 (15)	409 (9)
Moullate	-	266 (6)	45 (1)
Education			
Over 8- year	4193 (93)	3546 (80)	3787 (83.4)
Married			
	4419 (98)	4353 (98.2)	4405 (97)
Maternal age			
Age >35 vjeç	546 (12.1)	532 (12)	563 (12.4)
Multiple gestation			
parity> 1	2840 (63)	2997(67.6)	3047(67.1)
Birth weight			
< 2500-3950 gr	3697(82)	3710 (83.7)	3792 (83.5)
> 4000 gr	812 (18)	723 (16.3)	749 (16.5)

* N= total number of births for each year. P- value < 0.005.

Table 2. Frequency of factors that affected the cesarean birth.

Variable	2011	2012	2013	P Value
	N=1363 (%)	N=1501 (%)	N=1493 (%)	
P. Previa	29/41 (2.0)	28/40 (1.9)	28/ 41 (1.9)	0.823
Multiple Gestation	43/11 (3.3)	50/74 (3.3)	55/ 90 (3.7)	0.961
Preeclampsia	129/130 (9.5)	139/158 (9.3)	137/140 (9.2)	0.094
Abnormal presentation of fetus	50/130 (5.0)	72/ 99 (4.8)	78/144 (5.2)	0.976
Fetal distress	139/200 (14.3)	210/235 (14.0)	207/230 (13.9)	0.001
Ddystocia	62/130 (6.0)	89/100 (5.9)	88/172 (5.9)	0.897
Premature rupture of membranes	130/133 (10.0)	150/1906 (9.8)	146/1952 (9.8)	0.033
Previous cesarean section	430/1020 (36.0)	544/815 (36.3)	546/1035 (36.5)	0.532
Others	000 (13.9)	1006 (14.7)	130 (13.9)	<0.001

* Others = diabetes, serotine pregnancy, premature, fetal abnormalities, cervical cancer, active infection by herpes etc. * N- number of cesarean delivery. The first number indicates the number of cases solved with surgery and the number after indicates the total number of cases for each year.

placenta previa as a factor we see that it goes from 2.0% to 1.9%. Multiple gestation increases from 3.3 to 3.7%.

Preeclampsia decreased from 9.5 to 9.2%. Fetal distress, dystocia and premature rupture of membranes

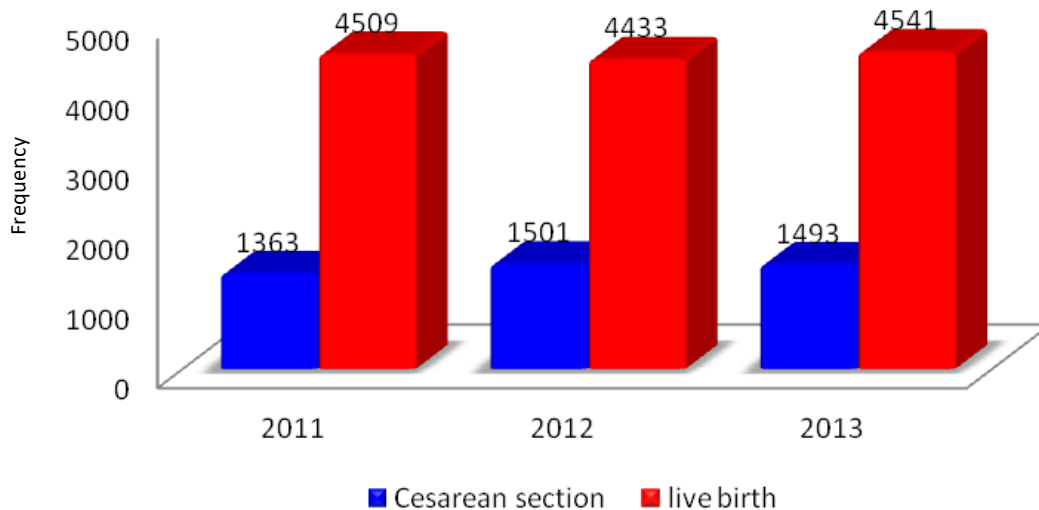


Figure 4. Cesarean section and total live births rate for each year.

Table 3. Frequency of factors that affected the cesarean birth.

Parameter	2011	2012	2013	P Value
	N=1363	N=1501	N=1493	
P.Plevia	29/41 (2.0%)	28/40 (1.9%)	28/ 41 (1.9%)	0.823
Multiple Gestation	45/77 (3.3%)	50/74 (3.3%)	55/ 90 (3.7%)	0.961
Preeclampsia	129/130 (9.5%)	139/158 (9.3%)	137/140 (9.2%)	0.094
Abnormal presentation of fetus	68/130 (5.0%)	72/99 (4.8%)	78/144 (5.2%)	0.976
Fetal distress	195/200 (14.3%)	210/235 (14.0%)	207/230 (13.9%)	0.001
Ddystocia	82/158 (6.0%)	89/100 (5.9%)	88/172 (5.9%)	0.897
Premature rupture of membranes	136/1939 (10.0%)	150/1906 (9.8%)	146/1952 (9.8%)	0.033
Previous cesarean section	490/1028 (36.0%)	544/815 (36.3%)	546/1035 (36.5%)	0.532
Others	806 (13.9%)	1006 (14.7%)	736 (13.9%)	<0.001

*Others = diabetes, serotine pregnancy, premature, fetal abnormalities, cervical cancer, active infection by herpes etc. * N- number of cesarean delivery. The first number indicates the number of cases solved with surgery and the number after indicates the total number of cases for each year.

experience a decreasing rate at approximately 0.1 to 0.2% per year. While abnormal presentation of fetus and previous cesarean section show an increasing rate at approximately 0.2 to 0.5%. The most critical factor that affects the trend of increasing cesarean deliveries are previous cesarean births with 36.5% with p-value 0.532. Fetal suffering 14.3% in 2011 decreases to 13.9% (this slight decrease is as a result of a better effort in prenatal care) and p-value 0.001 as in Table 3. Preeclampsia 9.2% although represents a slight fluctuation (this is due to an increased prenatal care) with p-value 0.094 and premature rupture of membranes increases to 9.8% in 2013.

DISCUSSION

At Maternity Hospital "Koco Gliozheni" in Tirana during

the period of January, 2011 to December, 2013 recorded a total of 13,483 births of which 4,357 babies were delivered by cesarean section. The study highlights a high percentage of cesarean births in our country with an average of 32.3%. This is viewed as a growing trend of births by caesarean section by 8.44% in 1982 to 24.19% in 2000 and increased to 32.9% in 2013. The high percentage of cesarean births is an international public health concern. This concern has affected the WHO in determining the rate of cesarean delivery which should not be more than 15%. (Kazmi et al., 2012, Singh and Channawar, 2009) If we compare the percentage of cesarean births of our country with the WHO recommendations (10 to 15%), results will show that cesarean delivery in this tertiary center are about 2.2 times higher than the maximum limit recommended by WHO. The most important factor affecting the increase in the number of cesarean deliveries in our study as well as

in many other studies worldwide is repeated cesarean birth (Goonewardene et al., 2012; Hafeez et al., 2014). Increasing trend of cesarean births is a worldwide phenomenon and the excess of over 15% of the recommendations of the WHO does not bring any benefit (Cheng, 2011; Hou et al., 2014; Bernstein, 2010; Rowaily et al., 2014).

Conclusion

The prevalence of cesarean births in Maternity Hospital center "Koço Glozheni" in Tirana from January, 2011 to December, 2013 was 32.3%. The most important factors that have contributed to the growing trend of cesarean births are: previous cesarean delivery, preeclampsia, fetal suffering and premature rupture of membranes. Less influential in our study appear placenta previa. While multiple gestation represents a growing trend due to the increasing number of in vitro fertilization. So we recommend:

1. Better prenatal and perinatal care.
2. Careful selection of the women who have previous cesarean section in future pregnancies.
3. Physician consulting with each other before taking the decision of implementation of cesarean birth.
4. Promote vaginal birth to a woman with previous cesarean section if she fulfills the criteria.

Conflict of interest

All authors declare that they have no conflict of interest.

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