

PRIMARY CESAREAN SECTION IN TABUK COMMUNITY IN SAUDI ARABIA: RATE AND CLINICAL INDICATIONS

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ABSTRACT

introduction : The study of the rate and characterizing the indications for Cesarean Section (CS) are useful and helpful for health care givers and researchers trying to lower the overall cesarean section rate and its complications.

Objectives : To identify the rate and the indications for primary Cesarean Section and that help to establish strategies to decrease the overall Cesarean Section rate and its complications especially in our community where the big family size is the norm. **Materials & Methods :** A retrospective cohort study of 987 women who gave birth by CS at King Khalid Hospital, Tabuk, Saudi Arabia along one year (January 2013 to December 2013). **Results :** Of a total of 2,720 deliveries during the study period, 987 deliveries were CS deliveries (36%). More than half of (55.5%) CS deliveries were primary CSs. The most frequent indications for primary CS were non reassuring fetal status (23%), breech presentation (20%) and failure to progress (18%). The entire group of patients with intermediate category of fetal heart tracing (72%) did not have fetal scalp pH testing (not available in the labor ward). **Conclusion :** Primary Cesarean section is high in our hospital as compared to the national and international institutions which offer external cephalic version and fetal scalp PH. These are important strategies that should be implemented to reduce the primary cesarean delivery rate and hence the overall rate of CS in Tabuk community.

INTRODUCTION

The rate of cesarean delivery has been increasing in the last decade and becomes the most common operation in many countries. In United State, rate of cesarean section increased from 21% to 32.9% between 1996 and 2009.^[1, 2] In England, cesarean section rate has increased from 9% in 1980 to 24.6% in 2008-9.^[3] Various reasons has been suggested for such increase, including advanced maternal age at first pregnancy, multiple pregnancies, breech presentation, maternal obesity, and women preference. Women with history of previous cesarean section, which contribute most to the overall increase in cesarean delivery rate.^[1, 4-7]

Cesarean section is a major surgical procedure, which is associated with higher morbidity and mortality than vaginal delivery.^[8] in UK maternal mortality during 1994- 1996 was higher with emergency CS 18.2 per 100,000 and elective CS 5.9 per 100,000 when compared to vaginal delivery 2.1 per 10,000.^[9] Hemorrhage, infection and thrombosis can complicate cesarean delivery.^[10] Cesarean section also has serious implication for future pregnancies. Uterine rupture, abnormal placentation, and adhesion of the uterus all can complicate future pregnancy. Taking all these information together, the most effective way to reduce the overall morbidities related to cesarean delivery is by avoiding the first (primary) cesarean delivery. Primary cesarean delivery rate is defined as percentage of cesarean deliveries out of all births to women who have not had previous cesarean delivery. Similar to total

cesarean delivery rate, the primary cesarean delivery rate is increasing, in United State this rate increase from 14.5% in 1996 to 23.4% in 2007.^[11] In Saudi Arabia, cesarean section become the most commonly performed surgery^[12]

as a result of substantial growth in the rate of cesarean section by 80.2% from 10.6% in 1997 to 19.1 in 2006.^[12] Previous history of cesarean section being the main indication of cesarean section in Saudi Arabia.^[13]

The aim of our study is to determine the indications of primary cesarean section in Tabuk region in Saudi Arabia. Understanding the factors leading to primary cesarean delivery is crucial in a high parity community such as our country with average family size is around 5.

Objectives

In our population, most of the couples prefer to have more than three children whatever the number of previous cesarean sections, many still seeking for pregnancy till the late forties. We collected data of the primary CS to evaluate the indications and the rate of each trying to find a way to reduce the overall primary CSR

An early and consistent observation has been that the most common indications were Abnormal CTG; Failure to progress and Breech presentation. This observation resulted in recommendations for practice that aimed to reduce the number of CS performed for these indications,

in particular, reducing primary CS for dystocia, fetal distress and breech presentation.

METHODS

Detailed information was collected for each primary cesarean section that took place during study period using the registration book in the labor ward.

All data were rechecked by specific team to ensure that all data were collected properly.

These data included

- Date of delivery
- Number of deliveries
- Number of CS
- Indication of CS
- Presentation
- Gestational age
- Induction of labor
- Duration of labor
- CTG category
- Number of babies born
- Birth weight
- Who made the decision

These data were analyzed to calculate

- Total number of deliveries
- primary CSR
- Repeated CSR
- The indications of CS
- The total number of each indication
- Percentage of each indication in the overall primary CS number
- Methods by which CSR can be reduced

Induction of labor

Induction of labor is started for primigravida and low parity patients at 41+2 weeks unless there is indication for earlier induction (sever intrauterine fetal growth restriction, pre eclampsia).

For multiparous (more than fourth pregnancy) or previous cesarean section who agreed to have trial of scar and met the criteria for induction of labor (singleton, cephalic and estimated fetal weight not more than four kg) induction of labor is started at 42 weeks

Failure to progress

CS is considered for failure to progress during first stage of labor if the patient entered active stage (3-4cm) of labor and no cervical changes for two hours in multigravida or patients with previous CS

In primigravida we wait for four hours to diagnose failure of progress, provided.

Good uterine contractions should be confirmed (clinically or on CTG trace)

In second stage of labor we diagnose failure to progress if patient remains fully dilated for one hour (in multigravida or with previous cesarean section) or for

two hours in primigravida if no signs of fetal head descend or sings of obstruction appeared. Oxytocin was used in most of primigravida and some of multigravida.

Fetal compromise

For persistent CTG abnormalities we perform cesarean section for suspected fetal compromise.

Breech presentation

For breech presentation at term the decision is left to the managing consultant. If vaginal delivery is offered, multiparty with no history of previous cesarean section, average fetal weight and the clinically adequate pelvis are mandatory.

All the patients with breech presentation were not counseled for ECV trial before labor.

Multiple pregnancies

We choose a delivery route based upon presentation, gestational age, and amnionicity (as well as the presence/absence of standard obstetrical indications for cesarean delivery (e.g., placenta previa). We avoid elective delivery of diamniotic twins prior to 38 weeks. When the first twin is not in vertex presentation, we plan cesarean delivery. For vertex-vertex twins, vaginal delivery is the choice in the absence of standard indications for cesarean delivery. For vertex-nonvertex twins, the second twin can be delivered according to the presentation after delivery of the first twin. The heart rate and position of the second twin should be evaluated using ultrasound and electronic fetal monitoring. As long as the fetal heart rate tracing, we were starting active management with oxytocin. Breech extraction of the second twin only if indicated, the obstetrician has the requisite experience and if the patient provides informed consent.

Who made the decision?

Our aim is that decision of cesarean section must be justified and taken by the most senior person.

RESULTS

Table: 1

Total number of deliveries	2720
Total number of vaginal deliveries	1742
Total number of CS	978
CSR	36%

Table: 2

Total Number of primary CS	548
Total Number of repeated CS	430

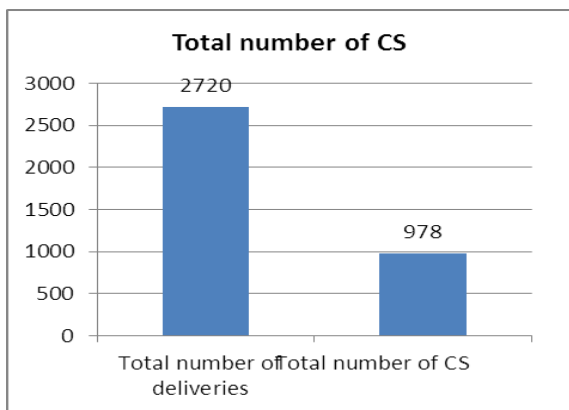


Figure 1

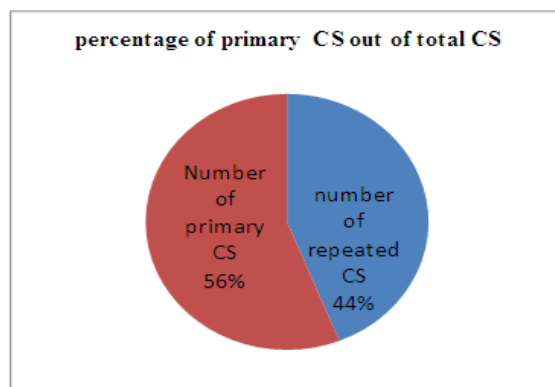


Figure 5: percentage of primary CS

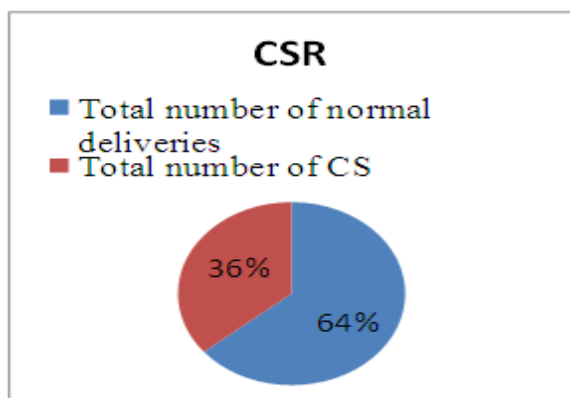


Figure 2

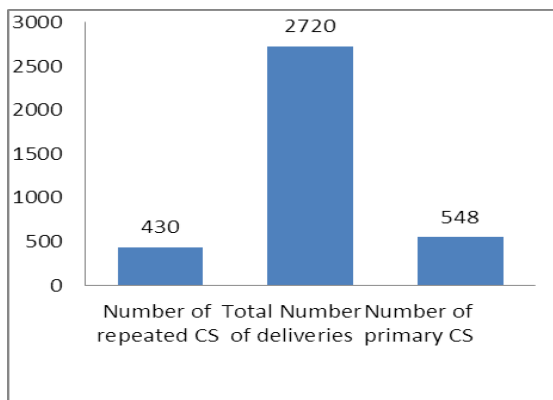


Figure 3: Total number of repeated CS

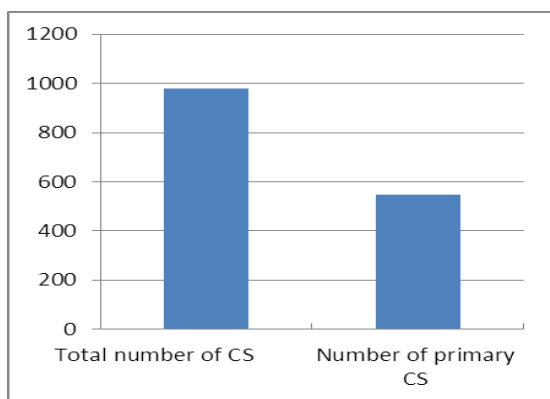


Figure 4: Total number of primary CS

The primary CS number by indication are shown in table I, 2.

Table 3: Most frequent indications of CS

Indications	CS number
Abnormal CTG	127
Breech presentation	110
Failure to progress	103
APH	87
Twins	38

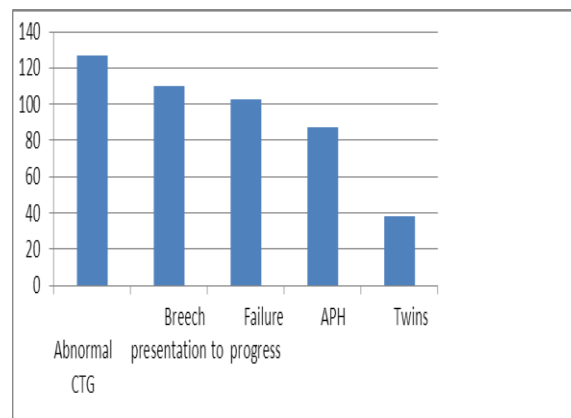


Figure 6 Most frequent indications of Primary CS

The most frequent indication for primary Cs was abnormal CTG which accounted for (23%) followed by breech presentation (20%) and failure to progress (18%) The least frequent indications were failed induction, maternal request and severe IUGR. Variable indications included history of infertility, primigravida with advanced maternal age, post term refusing IOL.

Table 4: Less frequent indications of cs

Indications	CS number
Variable indications	32
Pre- eclampsia	18
Big baby	11
Meconium stained liquor	9
Cord prolapse	6
IUGR	3
Maternal request	3
Failed induction	1

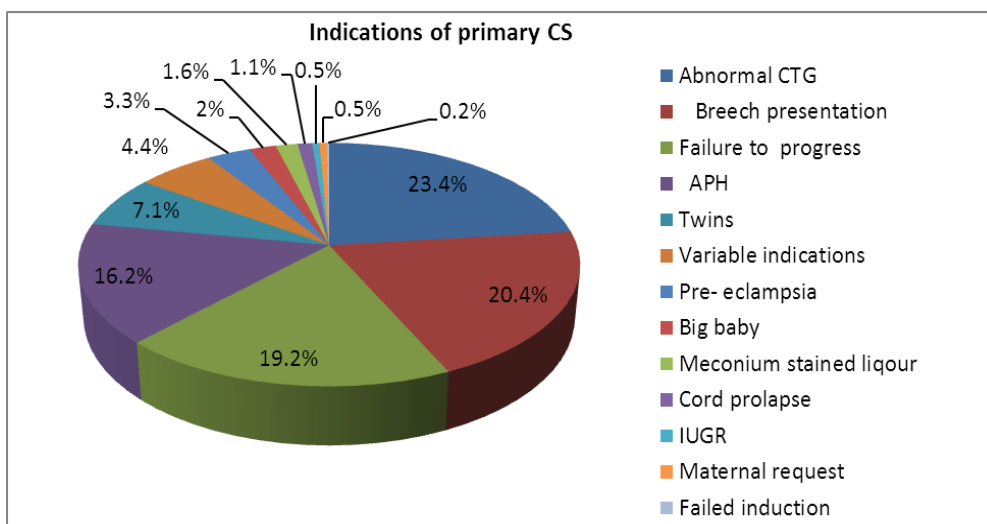


Figure: 7

CONCLUSIONS

This descriptive statistics and associations have not been about judgment of practice but about gathering essential and relevant data to inform the development of guidelines for caesarean section. In many important aspects, the results provide areas for improvements e.g. performing FBS for abnormal fetal heart beat tracing, trial of ECV for breech presentation, Although the incidence of some characteristics mentioned before is low, it contributed by big number to CSR e.g. breech presentation (which may be avoided by ECV hence reduce the CSR for breach presentation by 50 %.)

DISCUSSION

In our hospital we are dealing with considerable number of deliveries (more than two thousands /year) many of them belong to the high risk groups (age, weight, parity and previous two or more cesarean sections).

In this study, our main concern was to calculate our primary CSR and to find out safe ways to decrease it which will apparently decrease the repeated CSR in those who wish or plan to have big families.

We started our research protocol to include all indications contributed to primary CSR. All patients delivered in the study period (January 2013 to December 2013) were included.

In the study we found that our total CSR was 36% which was more than other national and international figures (UK,USA). More than half of (55.5%) CS deliveries were primary CSs.

CSR for abnormal CTG was the highest as the decision for CS was depending solely on the individual and subjective interpretation of CTG without using fetal scalp PH. Most of these (72%) cases were under category II (suspicious) CSR for breech presentation was apparently high (although we do not have an accurate figure for the total breech presentation). The options of

ECV trials and assisted breech delivery in selected patients after full counseling are not offered to the patients as there are no available or applicable hospital guidelines regarding ECV. The collected data guided us to implement and update our guidelines in different aspects.

Recommendations

CSR can be safely reduced by.

- Training the physicians and midwives proper interpreting of CTG
- Using fetal scalp PH as a backup
- Offering ECV trial for patients with breech presentation who don't have contraindications and increasing the number of trials.
- Increasing physician's skills of ECV, assisted breech delivery and instrumental deliveries
- Avoiding unnecessary induction of labor
- Performing membranes stripping at 40 weeks
- Providing consultant services 24 hours if needed

Abbreviations

CS: cesarean section

CSR: cesarean section rate

CTG: cardio tocography

IOL; Induction of labor

ECV: external cephalic version

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