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Rate, Indications and Complications of Caesarean Section at Aljamahiriya Hospital, Benghazi, Libya

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ABSTRACT

Background: Rates of caesarean section (CS) in developing as well as developed countries have increased beyond World Health Organization (WHO) recommended level of 15% almost doubling in the last decade. **Aim:** To assess the rate, indications and early complications of CS delivery at Aljamahiriya hospital, Benghazi, Libya. **Methods:** A retrospective study involved representative sample of 670 out of 4654 of cases delivered by CS during the year 2009. Data were recorded from the hospital files, and statistical reports of the department of statistics. A predesigned questionnaire was used to collect the data needed for the study including parity, type of CS, indications for emergency and elective CS and early complications that might have led to CS. **Results:** A total of 16109 deliveries were reported in Aljamahiriya hospital during 2009, 4654 of them were delivered by CS constituting 22.4% of total deliveries. The main indications of emergency CS were fetal distress (38.2%) and previous two scars (22%), while in elective CS the main indication was previous scars (50%). The overall rates of early complications were 2.3% for emergency CS and 3.9% for elective ones; wound infection was reported among 1.8% of cases with elective CS, while post partum hemorrhage constituted the most common complication of the emergency CS (1.1%). **Conclusion and Recommendations:** The high and unprecedented increase in CS rates reported in this study may be partly due to CSs that are not medically indicated, and suggest that physician practice patterns and patient preferences should be explored. The present study is the first step to document actual practice. It points out for further in depth studies to explore the medical, environmental and social factors contributing to the high rate of CS. In addition, similar studies should be carried out at other hospitals in Libya. The results should be used by the national health authorities to introduce more evidence based practice and so decrease maternal mortality and morbidity.

Keywords: Cesarean section (CS), postpartum haemorrhage (PPH)

INTRODUCTION

A caesarean section (CS), also known as C-section or Caesar, is a surgical procedure in which incisions are made through a mother's abdomen (laparotomy) and uterus

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(hysterotomy) to deliver one or more babies. It is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk, although in recent times it has been also performed upon request for childbirths that could otherwise have been natural.[1]

The World Health Organization (WHO)[2] recommended that the rate of CS should not exceed 15% in any country. However, in the last two decades the rate has risen to a record of 46% in China and to levels of 25% and above in many Asian countries, Latin America, and the USA.[1,3] Many are questioning the recommended optimal CS rate by suggesting that lowering the rate may be dangerous.[4,5] Efforts to bring down the rate have failed and it is on a steady rise. In 2001 an estimated 21.4% of all deliveries in England and Wales were by CS, a fivefold increase since 1971.[6] In 2002, more than one-fourth of all births (26.1%) in United States were CS deliveries while the highest ever reported rate (32%) was in 2007.[7,8] In 2004, rate of CS births for first pregnancies was as high as 29.1% of all births.[9] It has also been reported that the rate of CS section in Egypt is also showing an uprising trend.[10] The rising trend in CS is definitely not limited to USA and UK. In Brazil, there are hospitals with 100% CS rate. The Brazilian Ministry of Health has imposed upper limit of CS rate at 35% in public hospitals while private sector rates of 70% and more are common in the country.[11] In Delhi, CS rate in teaching hospitals currently ranges between 19-35%.[12] In Sweden, Denmark and Netherlands, the CS rate is still close to 10% with some of the world's lowest maternal and prenatal mortality rates.[13,14] The Center for Disease Control and Prevention's (CDC's) Healthy People 2010 initiative has the explicit goal of reducing the cesarean birth rate.[15] This objective is predicated on the belief that high rates of cesarean delivery reflect procedure use in mothers and infants who obtain little benefit

from the procedure. In extreme, higher procedure rates might even be associated with iatrogenic harm, stemming from surgical complications that are not offset by therapeutic benefit.[16] The reasons why the CS rate has increased dramatically during the past few decades and its continued rise are not completely understood. However, one explanation suggests that women are having few children, thus a greater percentage of births are among primiparas, who are at increased risk for caesarean delivery. The average maternal age is rising, and older women, especially primiparas, are at increased risk of caesarean delivery.[8] The use of electronic fetal monitoring is widespread. This technique is associated with an increased caesarean delivery rate compared with intermittent fetal heart rate auscultation.[17]

AIM OF THE STUDY

The aim of this study was to assess the rate, indications and early complications of caesarean section delivery at Aljamahiriya hospital, Benghazi, Libya.

MATERIALS AND METHODS

This retrospective study was implemented using data from hospital records, and statistical reports at Aljamahiriya hospital department of statistics. This hospital is a teaching hospital; the only governmental facility for delivery in Benghazi City and referral hospital from east Libya. The sample of this study involved 670 out of 4654 cases delivered by caesarean section at Aljamahiria hospital, Benghazi Libya during the year 2009. Based on a prevalence rate of 24%[10] and a desired precision of 3% around the prevalence rate, using 95% confidence level and 5% level of significance, the minimum sample size estimated was 670 cases of those delivered by CS. A predesigned questionnaire was used to collect the data needed for the study including parity, type of CS, indications for emergency CS, indications for elective CS and early complications that might have led to CS.

Data were verified and analyzed using

SPSS version 12.0 software package. Descriptive statistics were used to present the various variables. The Chi-square (X^2) and Fisher exact tests were used to compare groups on different variables; *P*-values were considered significant at ≤ 0.05.

RESULTS

A total of 16109 deliveries were reported in Aljamahiriya hospital during 2009; 4654 of them have undergone CS which constituted 22.4%. The mean age of mothers was 32.3±5.6 years with minimum age 18 years and a maximum 51 years. The total number of emergency CSs was 442 (66%) while the elective CSs were 228 out of 670 of the sample (34%).

Primiparous women constituted 42.5% of the emergency CS cases, and only 20.2% of the elective CS ones, while the multiparous women rated 45.9% and 62.3%, of the emergency and elective CSs respectively. Grand multiparous constituted 11.5% in emergency and 17.5% in elective CSs, this difference in the distribution between the emergency and elective CSs was statistically significant ($p< 0.0001$).

Table 1. Distribution of cesarean section deliveries according to parity and their type at Aljamahiriya hospital, Benghazi, Libya, 2009

Type	Emergency		Elective	
	No.	%	No.	%
Primiparous	188	42.5	46	20.2
Multiparous (1-4)	203	45.9	142	62.3
Grandmultiparous (≥5)	51	11.5	40	17.5
Total	**442**	**100**	**228**	**100**

X^2= 33.335, p = 0.000

The indications of emergency CS are shown in table 2. The most common indications recorded were fetal distress and previous two uterine scars (38.2% and 22.0% respectively). The lack of progress was the cause in 10.9% of the cases and 8.8% of the CSs were due to premature rupture of membrane. Obstructed labor and placental abruption were the indications for CSs among around 6% of the cases.

Table 2. Indications of emergency cesarean section at Aljamahiriya hospital, Benghazi, Libya, 2009

Indication	No.	%
No progress	48	10.9
Obstructed labor	27	6.1
Placenta previa on labor	20	4.5
Abruption Placenta	28	6.3
Premature rupture of membrane	39	8.8
Fetal distress	169	38.2
Previous two scars	97	22.0
Others*	14	3.2
Total	**442**	**100**

*Contracted pelvis, malpresentation

The main indication of elective CS was previous two scars (50%). Elective CS was applied among 11.8% of the cases when the baby was considered as a precious baby. Large baby size and placenta previa were the causes of CSs among 11% of the cases. Older primi were the cause of CS among only 5.2 % of the cases, (Table 3).

Table 3: Indications of elective cesarean section at Aljamahiriya hospital, Benghazi, Libya, 2009

Indication	No.	%
Previous two scars	114	50.0
Precious baby	27	11.8
Large baby size	25	11.0
Placenta previa	25	11.0
Primi-breech	16	7.0
Old primi	12	5.2
previous scar-breech	5	2.2
Other*	4	1.8
Total	**228**	**100**

*Contracted pelvis, malpresentation

The distribution of patients delivered by CS according to complications encountered is presented in table 4. The results show that ten cases (2.3%) of the emergency CS suffered from early complications after the operation, while nine cases in the elective CS group (3.9%) had the early complications. The most common complication of emergency CS was post partum hemorrhage (1.1%), and was reported among 0.9% of the elective CS cases. The most common complication among elective cases was wound infection (1.8%), followed by post partum hemorrhage (0.9%). Bladder injury and cesarean hysterectomy were observed among 0.8% of the cases. The differences in the nature of complications between emergency and elective CSs were not statistically significant (p=0.35).

Table 4. Distribution of cesarean sections according to early complications at Aljamahiriya hospital, Benghazi, Libya, 2009

Type of complication*	Emergency (n=442)		Elective (n=228)	
	No.	%	No.	%
Wound infection	4	0.9	4	1.8
Post partum hemorrhage	5	1.1	2	0.9
Bladder injury	0	0.0	1	0.4
Bowel injury	1	0.2	0	0.0
Cesarian hysterectomy	0	0.0	1	0.4
Others	0	0.0	1	0.4
Total	10	2.3	9	3.9

*Fisher exact test, p= 0.35

DISCUSSION

There were 16109 deliveries at Aljamahiriya hospital during the year 2009, around a quarter of these deliveries (22.4%) was by cesarean section. This is considered a very high rate compared to a previous study conducted in the same hospital between 1998-2000; the rate of CS was 11.6%.[19] In 2006, the rate of CS in US was 31.1%.[20] Brazil tops the list with the world's highest cesarean rates in 2003: 30% in public hospitals and more than 70% in private hospitals and maternity clinics.[1] In India the CS rate was 34.4% where more than half of mothers had emergency CS (66).[21] The high rate of CS reported in this study may be due to the referral of high risk patients from surrounding rural areas where such service is not available. The use of electronic fetal monitoring during labor allowed the early detection of cases that needed CS.

Indications of emergency CS ranged between 4.5% for placenta previa to 38.2% for fetal distress. Previous two scars constituted around a half of indications for selective CS, while precious baby, large baby size and placenta previa rated 11% in each. This result was similar to previous results in the same hospital.[19] In an Indian study the main indications of cesarean

section were fetal distress (22.9%) followed by post cesarean pregnancies (21.5%) and the failure of progression in labour (11.8%). The main indications for elective cesarean section were post cesarean and cephalo-pelvic disproportion while, failure of progression of labour was the chief indication for emergency cesareans. This difference amongst emergency and elective cesarean indications was statistically significant ($p<0.05$).[21]

Over all rates of early complications among the studied group were 2.3% in emergency CS and 3.9% in elective ones. Although the overall rates were comparable, the results indicated that control of wound infection could have prevented the most common complication of both emergency and elective CSs as wound infection was reported among 0.9% in emergency and 1.8% in elective CSs. Hemorrhage was observed among 1.1% of emergency and 0.9% in elective CSs, the reasons for such a high risk of hemorrhage should be explored. Both caesarean hysterectomy and bladder injury were reported among 0.8% of elective CSs. The causes for such complications need to be evaluated for the development of possible preventive measures. Although, a great deal of the evidence is now available about the sort of care that is appropriate for women, there is a gap between the scientific evidence and the practices of obstetric care. So, identifying actual obstetric practices in the hospitals will provide information that can be compared against reliable research summaries and explore the possibility for change and this will be one step towards evidence-based obstetric care.

CONCLUSION AND RECOMMENDATIONS

The high and unprecedented increase in cesarean section rates reported in this study may be partly due to cesarean sections that are not medically indicated, and suggest that physician practice patterns and patient preferences should be explored. The present study is the first one to document actual practices. The national health

authorities can then use this information to compare against reliable research summaries and explore with providers the possibilities for change and ways to introduce more evidence based practices and so decrease maternal mortality and morbidity.

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