

Rising Rates of Caesarean Delivery at Mansoura University Hospital: A Reason for Concern

Adel Saad Helal*, El Said Abdel-Hady, Ehsan Refaie, Osama Warda, Hosam Goda and Lotfy Sherief Sherief

Faculty of Medicine, Department of Obstetrics and Gynaecology, Mansoura, Mansoura University, Egypt

Abstract

Objectives: To study the rates and indications of Caesarean delivery at Mansoura University Hospital in Egypt.

Patients and methods: This retrospective study collected data on caesarean delivery rates and indications from the medical records of 34598 women admitted to both emergency and high risk obstetric units over a 5-year period (January 2006-December 2010).

Results: The overall rate of caesarean delivery was 47.25%. Rates at the high risk and the emergency units were 79.33% and 29.15% respectively. The annual rate of caesarean delivery increased significantly ($p < 0.01$) from 42.65% in 2006 to 55.33% in 2010, mainly due to an increase in the rate of caesarean at the emergency unit. The most common causes were repeat caesarean (35.78%), medical disorders complicating pregnancy (14.25%), failure to progress in labor (10.37%) and malpresentations (9.9%). Vaginal birth after caesarean (VBAC) was attempted in 2078 women and was successful in 22.23%.

Conclusion: The overall rate of caesarean delivery at Mansoura University hospital was 47.25%. This high rate was mainly attributed to previous caesarean delivery, low rate of successful VBAC and the very low rate of attempted instrumental delivery.

Keywords: Caesarean section rates; indications

Introduction

The rates of delivery by Caesarean Section (CS) vary widely among different countries. In a recent study [1], 54 countries had rates of less than 10%, whereas 69 countries showed rates of more than 15%. There is an observed inverse association between rates of caesarean delivery and maternal and neonatal mortalities [2,3]. In the Eastern Mediterranean Region [4], the average rate of CS is around 10%. The data, however, are often not representative, being mostly hospital rather than community based. In Africa [5], the median caesarean delivery rate was 8.8%. In Ethiopia [6], the national population-based caesarean delivery rate was 0.6%, with regional rates varying from 0.2% to 9%.

In Egypt [7-9], data on rates and indications of CS are variable based on the level of experience and on the whether the delivery was carried out at a private or a public setting. In USA [10], the caesarean delivery rate has increased by more than 10% (from 26% to 36.5%) in a short time. In this study, we aimed to assess the rates and the indications of caesarean delivery and to find out why the rate is continuously increasing at a tertiary health care University Hospital in Egypt.

Patients and Methods

This retrospective study was carried out at Mansoura University Hospital, a major tertiary referral hospital in the delta region in Egypt. Data were collected on caesarean delivery rates and indications from the medical records of 34598 women delivered over a 5-year period (January 2006 - December 2010). The main indication for CS documented in the notes was recorded. In case of absence of an indication, maternal request or more than one indication, the cause was recorded as other indications.

The department of Obstetrics and Gynaecology in Mansoura includes 2 units, the emergency unit and the high risk obstetric unit. The emergency unit accepts referrals from private and public units as well as self referred cases with obstetric emergencies. Cases in the emergency unit are therefore a mix of low and high risk cases as many women just turn up for normal delivery. Women with high risk obstetric complications admitted through the emergency unit were

referred after delivery or after 24 hours into the high risk unit for further management. The high risk obstetric unit accepts women referred with high risk obstetric complications either from the emergency unit or the antenatal clinics. Both units operate independently with 24 hour working shifts. Dedicated obstetric staffs (Registrars, senior registrars and consultant level staff members) are on call for 24 hours. All caesarean sections were carried out after consultation with and approval of the obstetric consultant on call.

Ethical approval to publish the results of this study was obtained from the ethics committee of Mansoura Faculty of Medicine. Statistical analysis used SPSS (version 10), The chi square, Mann-Whitney U and Kruskal-Wallis tests were performed to identify significant differences between both units and between rates at different years of the study.

Results

Table 1 shows the number and percentage of vaginal and caesarean deliveries at both the emergency and high risk units. Table 2 shows that while the percentage of caesarean deliveries remained nearly the same over the study period in the high risk unit; it showed a steady increase in the emergency unit. Table 3 shows that the most common indication for caesarean delivery was repeat caesarean, followed by medical disorders complicating pregnancy, failure to progress in labour and malpresentations. Caesarean hysterectomy was indicated in 0.3% of cases because of morbid placental adhesions after previous caesarean deliveries. Table 4 shows that the percentage of successful

*Corresponding author: Adel Saad Helal, MD, Department of Obstetrics and Gynaecology, Mansoura University, Egypt, Tel: 01001655174; E-mail: adelsaadhelal@yahoo.com

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	Emergency unit	High risk unit	Total
Vaginal delivery	15670 (70.9%)	2580 (20.7%)	18250 52.75 %
Caesarean delivery	6448 (29.1%)	9900 (79.3%)	16348 47.25 %
Total	22118	12480	34598

Table 1: Overall rates of Caesarean delivery (2006-2010).

Year of study	Emergency unit (%)	High risk unit (%)	Total %
2006	22.50	80.01	42.6
2007	24.99	80.90	44.63
2008	26.70	79.17	45.66
2009	30.03	78.06	47.63
2010	41.41	78.67	55.33
p value	0.001*	0.921	0.012*

Kruskal-Wallis test; *significant

Table 2: Annual rates of Caesarean delivery over 5 years (2006-2010).

Indication	Emergency unit	High risk unit	Total	%
Repeat Caesarean	2929	2920	5849	35.78
Medical disorders	90	2240	2330	14.25
Failure to progress in labour	896	800	1696	10.37
Malpresentations	528	1090	1618	9.90
PROM/unfavorable cervix	400	1000	1400	8.56
Severe PE/ eclampsia	512	480	992	6.10
Multifetal pregnancy	352	541	893	5.46
Acute fetal distress	384	240	624	3.82
Placenta praevia	80	340	420	2.57
Placental abruption	128	110	238	1.46
Caesarean hysterectomy	0	49	49	0.30
Other indications	149	90	239	1.46
Total	6448	9900	16348	100%

PROM= Premature Rupture of Membranes; PE=Preeclampsia; Other indications included maternal request

Table 3: Indications of Caesarean delivery at the emergency and high risk obstetric units.

	Emergency unit (%)	High risk unit (%)	Total	(%)
Successful (Vaginal delivery)	265 (22.83)	197 (21.48)	462	22.23
Failed (Caesarean delivery)	896 (77.17)	720 (78.52)	1616	77.77
Total	1161 (100%)	917 (100%)	2078	(100%)

Table 4: Attempted vaginal birth after caesarean delivery (VBAC) (n=2078).

Vaginal Birth after Caesarean Delivery (VBAC) was 22.23% and was nearly the same at both the emergency and the high risk units.

Discussion

Caesarean section rates are progressively rising in many parts of the world [11]. In this study carried out at one of the largest tertiary level referral teaching hospitals in Egypt, the overall rate of delivery by CS was 47.25%. This rate is higher than other rates quoted from different parts of the world, both in the developed and developing countries [1-5]. This unacceptably high rate may be attributed to the fact that Mansoura University hospital is the only tertiary referral hospital in Dakahlia Governorate and receives women with high risk obstetric complications from a wide geographical area within the delta region in Egypt.

The classification of obstetric services into emergency and high risk units does not mean that cases admitted to the emergency unit were low risk. Indeed, some women in this unit were referred with life

threatening obstetric complications from private practice and general hospitals. The rate of CS at the high risk unit in Mansoura University hospital remained fairly constant at a rate close to 80% throughout the study period. The rates presented in this study were higher than those available from other parts in Egypt and from many other Arab countries [9,12,13]. The high rate of CS in this study could be attributed to 4 main reasons; firstly is the lack of a dedicated obstetric anesthetic staff member to offer epidural analgesia within the labour wards, secondly the more liberal view of CS as an accepted mode of delivery by junior obstetricians, especially at the emergency unit; thirdly the observed low rate of successful VBAC (22.23%) and fourthly the absence of any evidence of attempted instrumental (forceps and ventouse) deliveries in many instances where it may have been successful.

It is obvious that instrumental delivery is a lost art among Egyptian hospitals. Indeed, there were no reported cases of failed or even attempted instrumental deliveries in cases of acute fetal distress with the cervix fully dilated or in cases of prolonged second stage with the head engaged. By international standards, Vaginal Birth After Caesarean (VBAC) is successful in rates close to 90% with a very low complication rate [14,15]. In Egypt, VBAC has also been found to be safe [16] with 90% success rate without complications compared with only 22.23% in this study. The reason of this low success rate of VBAC at Mansoura University Hospital is currently under investigation in a separate study.

The most common indication for CS in the present study was previous delivery by one or more Caesarean sections. The National Collaborating Centre for Women's and Children Health in the UK [17] listed malpresentations, cephalopelvic disproportion and acute fetal distress as main indications for CS. In this study, the reported rate of CS due to acute fetal distress in labor was very low (3.82%). This may be explained by the lack of electronic fetal monitoring during labour in Mansoura University hospital and in Egyptian public hospitals in general. Attempts at reducing the CS rate are necessary and should start by reducing the number of primary cesareans to deal with the problem where it originates [18]. Unless measures are instituted to reverse the rapidly rising CS rate, the rates of maternal morbidity and mortality will continue to rise [19,20]. Although it is difficult to estimate an acceptable rate of CS at a tertiary referral obstetric hospital, the current rate at Mansoura University hospital seems to be unacceptably high.

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