

*Research Article***Caesarean Section as a cause of maternal mortality & morbidity at Minia Maternity & Children University Hospital****Mamdoh T. Hamdy, Ahmed S. Abd-Elmalik, Alaa G. Abd-Elazim and Sara A. Mohammed**

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**Abstract**

**Background:** Aims: Although the rate of caesarean delivery has increased dramatically worldwide, data reported from 1991 to 2003 show that most low-income countries have a caesarean delivery rate of less than 10%, while more than 30% of middle- and high-income countries exceeded 20%. The most recently available data from the World Health Organization (WHO) indicate that more than half of high-income countries have a caesarean delivery rate in excess of 25%, with caesarean sections accounting for approximately 32.3% of births in the US, the authors aimed to investigate the incidence, indications and outcomes of caesarean sections at Minia Maternity University hospital

**Methods:** Data will be obtained from operative list ward, neonatal ward and incubation records using a pretested structural data sheet (personal, present, past, family, obstetric, and menstrual history).

The data sheet was adapted from a series of tools that were developed for similar purposes. **Results:** Based on the data collected, the leading indications for caesarean birth are: previous caesarean section; malpresentation and malposition; cephalopelvic disproportion; maternal medical disorders; antepartum haemorrhage and fetal distress. Correspondingly, the most common maternal indications were: previous caesarean section (42.6%); local maternal causes, ante partum hemorrhage.

**Conclusions:** The caesarean delivery rate at Minia Maternity University hospital is markedly higher than the recommended rate set by WHO for developing countries (15%).

**Keywords:** Caesarean section indications, Caesarean section outcomes

**Introduction**

Caesarean section (CS) to the delivery of a fetus, placenta and membrane through the abdominal and uterine incision after 28 weeks of gestation<sup>(1)</sup>.

Since 1985, the international healthcare community has considered the ideal rate for CS to be between 10% and 15%. Since then, CS have become increasingly common in both developed and developing countries. When medically justified, a CS can effectively prevent maternal and perinatal mortality and morbidity.<sup>(2)</sup>

CS is one of the most common procedures to prevent health-threatening risks to the mother and infant. Increasing rate of CS attracted the attention of professionals and the need for CS has become a main discussion in the medical community.<sup>(3)</sup>

Rates of CS are of concern both in developed and developing countries. The global caesarean

section rate is distributed very unevenly. Latin America and Caribbean shows the highest rate (29.2%) and Africa shows the lowest (3.5%). In developed countries the proportion of cesarean birth is 21.1% whereas in least developed countries only 2% of deliveries are by cs. The analysis suggests a strong inverse association between cesarean section rates and maternal, infant and neonatal mortality in countries with high mortality levels. In many developed countries, cesarean sections are increased and attention has focused on strategies to reduce its use due to the concern that higher cesarean section rates do not confer additional health gain but may increase maternal risk, have implications for future pregnancies and have resource implications for health service<sup>(4)</sup>.

The steadily increasing global rates of CS have become one of the most debated topics in maternity care in the last few years<sup>(5)</sup>.

Delivery rate by CS varies internationally from 10-25%, and over last two decades vaginal birth has experienced considerable decline<sup>(6)</sup>.

The demographic and clinical characteristics of population like maternal age, ethnic origin, previous scars, breech presentations and induction of labor can greatly influence CS rate. Recent studies reaffirm earlier WHO recommendations about optimal CS rates. The best outcome of mothers and babies appear to occur with CS rates of 5% to 10%. Rates above 15% seem to do more harm than good<sup>(7)</sup>

### **Aim of the Work**

The aim of this retrospective statistical study is to review the rate and indications of CS deliveries at Beni-Suef General Hospital Department of obstetrics over a 2 years period from the beginning of 2015 to the end of 2016. This will aid in providing the first step in establishing a local protocol at our hospital and to reduce the formerly noted high CS rate.

### **Patients and Methods**

This is a prospective cross sectional study of the incidence of cesarean section in Minia Maternal University hospital in the period between April and October 2018.

#### **1- Technical Design:**

The data presented in this study were obtained from the files of patients admitted to Minia Maternal University Hospital (incomplete files were excluded from data).

#### **2- Operational Design:**

During the preparatory phase, visits to Minia maternal university Hospital were done to see medical records and to test for the available information.

Review of relevant literatures and getting the experts opinions were helpful to assist designing and processing the data collection.

### **3- Administrative Design:**

After approval of ethical comity to conduct the research, the researcher obtained written permission from the manager of the hospital to conduct the study.

### **4- Difficulties during data collection:**

- \* Missed files
  - \* Writing badly
  - \* Incomplete data in patient files
  - \* Difference between data in diagnosis and data in patient history
  - \* Difference between data in patient files and data in nurses files
  - \* Employees were uncooperative, files were deprecated and papers were out of order
  - \* Nurses were not available most of the time and many of them refused to learn about data
  - \* Difference between cases number in patient affairs office and statistic office
- 5-** Some of missed data were collected from nurses and follow up anesthesia files
- 6-** If there is discrepancy in data, try contact patients to confirm the accuracy of data
- 7-** Meet patients during outpatient

### **Results**

This study included the percentage of caesarean El-Mina University Hospital Department of Obstetrics & Gynecology in the period between Apr 2018 and Sep 2018.

Within the study period there were 5569 births, of which 2964 were by caesarean accounting for incidence of 52.9% and 2632 were by normal vaginal delivery accounting for incidence of 47.03%, in the present study there were 2628 caesarean cases (incomplete files were excluded)

**Table (1): socio-demographic data**

<b>1- Age</b>	Mean range 18-40 years	> 98%
<b>2- Marital status</b>	<ul style="list-style-type: none"> <li>● Married</li> <li>● Divorced</li> </ul>	- 2368 (97.7%) - 60 (2.3%)
<b>3- Parity</b>	<ul style="list-style-type: none"> <li>● P 0</li> <li>● P 1-4</li> <li>● P &gt; 4</li> </ul>	- 562 (21.4%) - 1813 (69%) - 253 (6.6%)
<b>4- Abortion</b>	<ul style="list-style-type: none"> <li>● N 0</li> <li>● 1-2</li> <li>● &gt; 2</li> </ul>	- 1794 (68.3%) - 533 (20.3%) -301 (11.4%)
<b>5- Previous</b>	<ul style="list-style-type: none"> <li>● prev. 0</li> <li>● prev. 1-2</li> <li>● prev. &gt;2</li> </ul>	- 919 (35%) - 1273 (48.4%) - 436 (16.7%)
<b>6- preoperative hemoglobin</b>	<ul style="list-style-type: none"> <li>● Hb. 7-10</li> <li>● Hb. &gt;10</li> </ul>	-228(8.6%) -2400(91.4%)
<b>7- Medical problem</b>	<ul style="list-style-type: none"> <li>● No</li> <li>● Hypertensive</li> <li>● Diabetes</li> <li>● Anemia</li> <li>● Others(thrombocytopenia, heart disease, HELLP )</li> </ul>	- 1794 (68.3%) - 454 (17.3%) - 102 (3.9%) - 228 (8.6%) - 50 (1.9%)

\* Mean range of age 20-40 years old

\* Many cases were married

\* Hypertensive was the most common medical disorder then anemia and diabetes

\* Majority of cases were primigravida

## Discussion

Since 1985, the international healthcare community has considered the ideal rate for CS to be between 10% and 15%. Since then, CS have become increasingly common in both developed and developing countries. When medically justified, a CS can effectively prevent maternal and perinatal mortality and morbidity. However, there is no evidence showing the benefits of CS for women or infants who do not require the procedure. As with any surgery, it is associated with short and long term risk which can extend many years beyond the current delivery and affect the health of the woman, her child, and future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care.<sup>(7)</sup>

Fifteen countries with around 12 million births per year have CS rates over 30%<sup>(8)</sup>.

Some countries have experienced remarkable increases. Egypt, Turkey, Dominican Republic, Georgia and China have all had over 30 percent points increase in their CS rates over the last 24 years<sup>(9)</sup>.

In Egypt according Ministry of Health and Populations reported data; more than 50% (50.8%) of all deliveries were by CS without much difference between urban and rural areas. The possible factors employed in the rising CS rates were fear of labour pains; misconception about genital damage after vaginal delivery; misconception about safety of CS delivery for the baby; medico-legal issues and responsibilities if fetus was lost in normal labour, health professionals a financial issues and lower tolerance to any complications or outcomes other than the perfect baby.<sup>(10)</sup>

Research has shown that the relative risks of maternal mortality, neonatal respiratory morbidity, hysterectomy, ureter and bladder injury, fetal death, placental previa, and uterine rupture in a future pregnancy are increased with CS compared with vaginal delivery<sup>(11)</sup>.

This prospective cross sectional study had been conducted at Department of Obstetrics and Gynecology of Minia Maternity University Hospital, Egypt. All CS that occurred from 1 April 2018 till 30 September 2018 were

reviewed as regard patient age, parity, indications and any complications occurred. The study showed that there was increase in caesarean sections (52.9%). Plevani et al.,<sup>(12)</sup> conducted an Italian register-based study of CS rates and obstetric culture which included 87,896 deliveries and the number of deliveries per hospital ranged from 140 to 6123 and the rate of CS was 28.3%. These results also agree with Khan et al.,<sup>(13)</sup> who studied Socio-demographic predictors and average annual rates of CS in Bangladesh between 2004 and 2014, They found that CS rates increased from 3.5% in 2004 to 23% in 2014.

### Recommendations

1. As previous CS is the leading indication of high rates of CS so we recommend:
  - Implementation of proper active management of labour to avoid false diagnosis of failure of progress.
  - Revision of more precise definition of fetal distress and hopefully introduction of fetal scalp pH measurement facility to avoid a false positive predication of fetal distress by the use of electronic fetal monitoring.
  - Use of Instrumental delivery.
  - The practice of ECV and assisted breech delivery may be selected safely in many patients with breech presentation at term, by more training of the new residents in the hospital.
  - Emphasis on evidence based clinical practices rather than personal experience based decisions.
2. Encouragement of VBAC.
3. Encourage ANC follow up.
4. Encourage spinal anesthesia for Cs rather than general anesthesia.
5. Future prospective study that addresses women with repeat CS and their association with adverse maternal and fetal outcomes is recommended.

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