

SURVEY OF INCIDENCE, INDICATIONS, COMPLICATIONS AND MANAGEMENT OF COMPLICATIONS OF CESAREAN SECTIONS AT EL-TAHRIR GENERAL HOSPITAL "IMBABA" DURING "2018-2019"

By

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ABSTRACT

Background: Cesarean section (CS) rates have been increasing worldwide, but little research exists on trends of cesarean section delivery for any country in the Arab world.

Objectives: To present an updated assessment of incidence, indications, complications and management of complications of C.S about the patients at Al-Tahrir General Hospital (Imbaba) and making a statistical survey during (2018-2019) to reach to the most common indications and complications which if avoided, can improve the outcome for the mother and fetus.

Patients and methods: This is a retrospective study, carried out at Obstetrics and Gynecology department at Al-Tahrir General Hospital, Faculty of Medicine, on one thousand and four hundred pregnant females, from August 2019 till December 2020.

Result: There was a significant difference between previous CS and birth outcome as regards gestational age at birth. Among the studied cases regarding indications for caesarean section, 22.1% had previous cesarean deliveries, 17.7% had a late pregnancy, 18.5% had abnormal amniotic fluid, 4.2% had hypertensive disorder, and 11.2% labored Prolonged and obstructed, 14.6% had fetal problems, 7.14% had preeclampsia, 5.7% had preeclampsia, 4.3% had urinary tract infection, 7.9% had other problems. Among the cases studied according to the characteristics of the operation, the mean duration was 37.50 (± 4.62) with a range (30-45), as for the level of surgeon, there were 20.9% consultant, 40.8% specialist, 38.4% resident, and for the estimates of blood loss there were 31.2% less From 1000, 65.8% between (1000-1500), 3% over 1500. Among the studied cases in terms of complications, there were 1.9% stillbirth, 1.8% infection complications, 0.3% breathing problems for the child, 1.9% surgical injury to the bladder, 1.1% severe bleeding, 0.1% fetal injury.

Conclusion: Cesarean sections should be performed with caution. The main challenge related to cesarean sections is its best use which is an important resource for the reduction of maternal and neonatal mortality but on the other, when used excessively may be associated with an increased risk of serious maternal outcomes.

Keywords: cesarean section rate, indications, complication, delivery.

INTRODUCTION

Cesarean delivery can effectively reduce maternal and neonatal mortality and morbidity in the presence of

complications, such as antepartum hemorrhage, fetal distress, abnormal fetal presentation, and hypertensive disease. During the past 3 decades, worldwide cesarean delivery rates have seen a more

than 3-fold increase, from approximately 6% in 1990 to 21% in 2015, with substantial variations among and within countries (*Manyeh et al., 2018*).

The main indications of C.S are multiple medical causes related to the fetus, the mother, the general condition, social cultural and financial (*Vogel et al., 2015*).

The leading indications for cesarean delivery are previous cesarean delivery, breech presentation, dystocia, and fetal distress (*Nelson, 2017*). The indications of C.s can be classified into maternal indications for cesarean delivery in which neonatal morbidity and mortality could be decreased by the prevention of trauma, malpresentations as preterm breech presentations, and non-frank breech term fetuses, certain congenital malformations, or skeletal disorders and infection (*Vandenbergh et al., 2018*). Indications for cesarean delivery that benefit the mother and the fetus include abnormal placentation (eg, placenta previa, placenta accreta), abnormal labor due to cephalopelvic disproportion and premature rupture of membrane (*Mylonas and Friese 2015*).

Complications are classified into intraoperative as infections, organ injury "bladder, ureter intestine" and hysterectomy as a result of severe bleeding (*Mascarello et al., 2017*), and postoperative complications as thromboembolic complications, septic wound, burst abdomen and paralytic ileus (*Sentilhes et al., 2016*), risks for subsequent pregnancies adhesions, preterm delivery and ectopic pregnancy (*Haas et al., 2018* and *ACOG, 2019*).

Risks reduced after elective C.S such as abdominal and perineal pain during birth and 3 days after birth, vaginal injuries, uterine prolapse and urinary incontinence (*Mylonas and Friese, 2015*).

The present work aimed was to present an updated assessment of incidence, indications, complications and management of complications of C.S.

PATIENTS AND METHODS

This study was a retrospective and prospective study carried out at Obstetrics and Gynecology Department at Al-Tahrir General Hospital during the period from January 2018 till December 2019.

Inclusion criteria: All female patients who had undergone cesarean section with or without complications.

All participants received comprehensive information regarding objective and the expected benefit of the study. All ethical considerations were taken throughout the whole work.

Permission from the Faculty of Medicine ethical committee was also obtained and approval from institutional review board was taken. An informed verbal consent from all participants was taken and confidentiality of information was assured.

Statistical analysis: Analysis of data was done using Statistical Package for the Social Sciences version 20 (SPSS Inc., Chicago, IL, USA). Quantitative variables were described in the form of mean, standard deviation, range (minimum and maximum), median and interquartile range (IQR). Qualitative variables were described as number and percent. **The used tests were Chi-square test** for

categorical variables, to compare between different groups, **Fisher’s exact correction**; correction for chi-square

when more than 20% of the cells have expected count less than 5.

RESULTS

Among the studied cases as for age there were 31.5% less than 25, 29.9 between (25-30), 38.6% more than 30 with mean age 27.55(± 4.64 SD). As for parity there was 60.2% Primi, 15.9% equal 2, 8.2% equal 3 and 15.6% more than 3. As for residence and socio-economic status, there were 63% rural,

37% urban, 35.8% low, 48.4% moderate, and 15.9% high. As for employment and education, there were 10% employed and 90% unemployed, 10.4% illiterate. 34.2% with basic education. 34.4% with secondary education and 21.2% with college (**Table 1**).

Table (1): Distribution of the studied cases according to demographic and clinical data (n = 1400)

Demographic and Clinical data	No.	%
Age (Years)		
<25	441	31.5
25 – 30	418	29.9
≥30	541	38.6
Min. – Max.	20.0 – 35.0	
Mean ± SD.	27.55 ± 4.64	
Median (IQR)	28.0(23.0 – 32.0)	
Parity		
Primi	843	60.2
2	223	15.9
3	115	8.2
>3	219	15.6
Residence		
Rural	882	63.0
Urban	518	37.0
Socio-economic status		
Low	501	35.8
Moderate	677	48.4
High	222	15.9
Employment status		
Employed	140	10.0
Unemployed	1260	90.0
Education status		
Illiterate	145	10.4
Primary	479	34.2
Secondary	481	34.4
University	295	21.1

Among the studied cases as for cesarean section Indications there were 22.1% of a previous CS, 17.7% were postdated pregnancy, 18.5% had disorder of amniotic fluid, 4.2% had hypertensive

disorder, 11.2% were prolonged & obstructed labor, 14.6% had fetal distress, 7.14% had pre-eclampsia, 5.7% had eclampsia, 4.3% had UTIs, 7.9% had other problems (**Table 2**).

Table (2): Distribution of the studied cases according to cesarean section indications (n=1400)

Caesarean section indications	No.	%
Previous CS	310	22.1
Postdated pregnancy	248	17.7
Disorder of amniotic fluid	259	18.5
Hypertensive disorder	59	4.2
Prolonged & obstructed labor	157	11.2
Fetal distress	205	14.6
Pre-eclampsia	100	7.14
Eclampsia	80	5.7
UTIs	60	4.3
Others	110	7.9

The mean duration of operation was 37.50 (\pm 4.62 SD) with range (30–45), as for level of surgeon there were 20.9% consultant, 40.8% specialist, 38.4%

resident, as for estimated blood loss there were 31.2% less than 1000, 65.8% between (1000-1500), 3% more than 1500 (**Table 3**).

Table (3): Distribution of the studied cases according to operation characteristics (n=1400)

Operation characteristics	No.	%
Duration (min)		
Min. – Max.	30.0 – 45.0	
Mean \pm SD.	37.50 \pm 4.62	
Median(IQR)	38.0(33.0 – 42.0)	
Level of surgeon		
Consultant	292	20.9
Specialist	571	40.8
Resident	537	38.4
Estimated blood loss		
<1000	437	31.2
1000 - 1500	921	65.8
>1500	42	3.0

There were 3.6 % had ICU admission, there were 1.4 % had post-operative exploration and 3.6 % had C.S Hysterectomy (Table 4).

Table (4): Distribution of the studied cases according to ICU admission, Post-operative exploration and C.S Hysterectomy (n=1400)

ICU admission	No.	%
No	1350	96.4
Yes	50	3.6
Post-operative exploration	No.	%
No	1380	98.6
Yes	20	1.4
C.S Hysterectomy	No.	%
No	1390	99.3
Yes	10	0.7

There was 98.9% singleton and 1.1% twins, 51.9% males, 47.6% females, 0.6% both. As for gestational age of birth, there were 54% less than 40 weeks and 46% more than 40 weeks with mean 39.33(± 1.70 SD) and range (37–42) (Table 5).

Table (5): Distribution of the studied cases according to fetal outcome (n=1400)

Fetal outcome	No.	%
Fetal number		
Singleton	1384	98.9
Twins	16	1.1
Sex of the newborn		
Male	726	51.9
Female	666	47.6
Both	8	0.6
Gestational age at birth		
<40 weeks	756	54.0
≥40 weeks	644	46.0
Min. – Max.	37.0 – 42.0	
Mean ± SD.	39.33 ± 1.70	
Median(IQR)	39.0(38.0 – 41.0)	

As regards complications, there were 1.9% stillbirth, 1.8% infection complications, 0.3% breathing problems for the child, 1.9% surgical injury of bladder, 1.1% had heavy bleeding and 0.1% had fetal injury (Table 6).

Table (6): Distribution of the studied cases according to complications (n=1400)

Complications	No.	%
Stillbirth	27	1.9
Infection	25	1.8
Breathing problems for the child	4	0.3
Surgical injury of bladder	26	1.9
Heavy bleeding	16	1.1
Fetal injury	2	0.1

DISCUSSION

In this study, among the studied cases for age there were 31.5% less than 25, 29.9 between (25-30), 38.6% more than 30. As for parity, there were 60.2% Primi, 15.9% equal 2, 8.2% equal 3, and 15.6% more than 3. *Manyeh et al. (2018)* showed that the mean age of the study participants was 28 years, while teenagers (< 20 years) contributed the least proportion of the study participants (11.16%), the 25–29 age group formed the highest proportion (26.03%) followed by the 20–24 and the 30–34 years' groups which accounted for 23.26 and 21.44% respectively. Participants with parity 3 or more formed 30.52% of participants while those with parity 1 and 2 were 26.56, and 23.91% respectively. They also showed that 30.48% of the study participants were petty traders, 22.74 and 17.28% were unemployed and farmers respectively. Students formed 13.52% of the study participants. Mothers with Junior high school and primary school level contributed 34.18 and 30.36% respectively. Participants without formal education accounted for 26.94% of the study's participants. *Mobarak and Sultan (2019)* showed that the age was mainly between 20 and less than 35 years (67.3%). The studied women were mostly urban residents (90%), unemployed (73.9%), non-smoker (98.2%), and university graduates (53.8%). The mean age of marriage was 24.1 ± 4.3 years with a consanguinity rate of 11.7%.

In this study, we found that among the studied cases according to history, there were 19.9% of fetal loss, 33.4% had previous surgery, 4.5% had hypertension, and 1.8% had diabetes. *Zeki et al. (2018)*

showed that A higher proportion of women aged ≥ 35 years was observed among women with diabetes during pregnancy – 32.5% of women with pregestational diabetes and 34.9% of women with GDM – compared to 21.3% among women without diabetes. Multiparous women represented 63.0% of women with pregestational diabetes and 59.7% of women with GDM, compared with 57.4% of women without diabetes. *Ferraro et al. (2019)* investigated the associations of CD with hypertension, systolic blood pressure (BP), and diastolic BP and tested whether body mass index (BMI; weight (kg)/height (m²) was a mediator of these associations in a birth cohort and found that of the studied participants had hypertension.

In this study, we illustrated that among the studied cases as for cesarean section indications there were 22.1% of previous CS, 17.7% was postdated pregnancy, 18.5% had disorder of amniotic fluid, 4.2% had hypertensive disorder, 18.5% had Disorder of amniotic fluid, 11.2% were prolonged, obstructed labor, 14.6% had fetal distress, 7.14% had pre-eclampsia, 5.7% had eclampsia, 4.3% had UTIs and 7.9% had others problems.

Gourisankar et al. (2010) showed the proportion of various indications and number of maternal deaths in the CD group. Previous history of CD represents the most common indication (42.3%), followed by nonprogress of labor (16.5%) and fetal distress (14.6%). *Begum et al. (2017)* showed that, based on ICD-10 classification, previous history of C-section' was the most common indication (24.1%) for doing C-sections. Other indications included: fetal distress

(20.6%), prolonged and obstructed labor (15.9%), amniotic fluid disorder (14.3%), post-dated pregnancy (13.1%), maternal disorder related to pregnancy (4.5%), fetal mal-presentation (3.5%), hypertensive disorder in pregnancy (2.5%), placenta praevia (0.78%) and general disease complicating pregnancy (0.7%). *Mobarak and Sultan (2019)* showed that the leading indication was previous CD (34.9%) followed by women request (12.1%), malpresentation (11.0 %), and HDP (7.1%). Causes of maternal request were mostly fear of labour pain (55.8 %), bad experience with previous vaginal delivery (14.3 %), false belief that “once CD always CD” to avoid complications (22.1 %), and financial accessibility (7.8%). Failure to progress (5.8%), fetal distress (5.2%), and antepartum hemorrhage (4.1%) were other causes.

In this study, we illustrated that among the studied cases according to operation Characteristics the mean duration was 37.50 (\pm 4.62 SD) with range (30–45), as for level of surgeon there were 20.9% consultant, 40.8% specialist, 38.4% resident, as for estimated blood loss there were 31.2%, 65.8% between (1000-1500) and 3% more than 1500. *Harde et al. (2014)* showed that 2.8% were admitted consecutively to post-anesthesia care unit (PACU).

In this study, we found that among the studied cases according to C.S Hysterectomy. There were 3.6 % had C.S hysterectomy. *Benzouina et al. (2016)* showed that mean gestational age in which cesarean section was done was similar in both groups that are 38 and half weeks. *Manyeh et al. (2018)* showed that

greater proportion of the babies born (52.87%) were males.

In this study, we demonstrated that among the studied cases as for complications there were 1.9% stillbirth, 1.8% infection complications, 0.3% breathing Problems for the child, 1.9% surgical injury of bladder, 1.1% had heavy Bleeding, 0.1% had fetal injury. *Farchi et al. (2010)* showed that ECS was associated with higher risk of hysterectomy, obstetric shock and anesthetic complications compared to women in the intended VD group. *Kamilya et al. (2010)* showed that CD was associated with a significantly increased risk of postpartum maternal death from complications of anesthesia, puerperal infection and venous thromboembolism. The risk of death from postpartum hemorrhage did not differ significantly between the vaginal and CD groups (95% CI 0.70–3.95). The specific cause of mortality could not be analyzed separately for antepartum and intrapartum CD because the number of deaths was too small. *Mascarello et al. (2017)* showed that the presence of postpartum infection has been evaluated in four studies. Among them, one has found no association between the type of delivery and the presence of infection, and the others have found a higher risk of puerperal infection and surgical wound complications among women undergoing cesarean section compared to vaginal delivery; another study has shown that, in cesarean sections before labor, women presented a higher risk of puerperal infection and surgical wound infection.

In this study we found that there is high significant difference between

previous CS and birth outcome as regards Gestational age at birth. There is no significant difference between previous CS and birth outcome as regards Fetal number, Sex of the newborn and Complications. *Kietpeerakool et al. (2019)* there were no significantly associated increased risks in women with a previous CS of fresh stillbirths, END, perinatal death, low Apgar score, and low birth weight. A previous CS is significantly associated with increased risks of uterine rupture, morbidly adherent placenta, MNM, SMO, and placenta previa. There was no significant difference, however, in rate of maternal death between pregnant women with a previous CS and those who had none. For neonatal outcomes, a previous CS was significantly associated with increased risks of NICU admission, NNM, preterm birth, and decreased risk of macerated stillbirth. There were no significantly increased risks of, fresh stillbirth, early neonatal death, perinatal death, low Apgar score, and low birth weight between the two comparison groups.

CONCLUSION

Cesarean sections should be performed with caution. The main challenge related to cesarean sections is its best use, which on the one hand is an important resource for the reduction of maternal and neonatal mortality, but on the other, when used excessively, may be associated with an increased risk of serious maternal outcomes.

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دراسة للمؤشرات والأسباب والمضاعفات وعلاج مضاعفات الولادة القيصرية في مستشفى التحرير العام إمبابة خلال "2018-2019"

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خلفية البحث: تتزايد معدلات الولادة القيصرية في جميع أنحاء العالم، ولكن لا يوجد سوى القليل من الأبحاث حول اتجاهات الولادة القيصرية في أي بلد في العالم العربي.

الهدف من البحث: تقديم تقييم محدث لحدوث ودواعي ومضاعفات وعلاج مضاعفات الولادة القيصرية لدى مرضى مستشفى التحرير العام (إمبابة) وعمل مسح إحصائي خلال (2018-2019) للوصول إلى الأكثر شيوعاً من المؤشرات والمضاعفات التي إذا تم تجنبها، يمكن أن تحسن النتيجة للأم والجنين.

المرضى وطرق البحث: كانت هذه دراسة استيعابية واستطلاعية، تم إجراؤها في قسم أمراض النساء والولادة بمستشفى التحرير العام تحت إشراف قسم أمراض النساء والتوليد بكلية الطب جامعة الأزهر، من أغسطس 2018 حتى ديسمبر 2019.

نتائج البحث: أظهرت الدراسة اختلافاً ذا دلالة إحصائية بين الولادات القيصرية السابقة ونتائج الولادة فيما يتعلق بعمر الحمل عند الولادة. ومن بين الحالات المدروسة فيما يتعلق بدواعي الولادة القيصرية، كان هناك 22.1% من حالات الولادة القيصرية السابقة، و 17.7% كان لديهم حمل متأخر، و 18.5% لديهم اضطراب في السائل الأمنيوسي، و 4.2% لديهم اضطراب ارتفاع ضغط الدم، و 11.2% مخاض مطول ومتعسر، و 14.6% لديهم مشاكل جنينيه، و 7.14% لديهم تسهم الحمل، و 5.7% لديهم تسهم الحمل، و 4.3% لديهم عدوى المسالك البولية، و 7.9% لديهم مشاكل أخرى.

من بين الحالات المدروسة حسب خصائص العملية كان متوسط المدة 37.50 (± 4.62) بمدى (30-45)، أما بالنسبة لمستوى الجراح فكان هناك 20.9% استشاري، 40.8% أخصائي، 38.4% مقيم، أما بالنسبة لتقديرات فقد الدم كان هناك 31.2% أقل من 1000، 65.8% بين (1000-1500)، 3% أكثر من 1500.

من بين الحالات المدروسة من حيث المضاعفات كانت هناك 1.9% ولادة جنين ميت، 1.8% مضاعفات عدوى، 0.3% مشاكل تنفس للطفل، 1.9% إصابة جراحية في المثانة، 1.1% نزيف حاد، 0.1% إصابة جنينية.

الاستنتاج: الولادة القيصرية عندما تكون لأسباب طبية معينة تتعلق بالأم أو الجنين وكذلك في الوقت المناسب تكون مفيدة وتحد من الكثير من المخاطر التي قد يتعرض لها الأم أو الطفل أما إذا لم يتم مراعاة الأسباب الطبية وإجرائها بدون اي داعي طبي وفي غير الوقت المناسب لها قد يتسبب ذلك في الكثير من المخاطر على السواء للام او البببي لذا يجب توخي الحذر وتقييم الحالة جيدا وذلك يتحقق بالمتابعة الجيدة للحالة طول فترة الحمل لآخذ القرار السليم.

الكلمات الدالة: معدل الولادة القيصرية والمضاعفات والولادة والأسباب وعلاج المضاعفات.