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ORIGINAL ARTICLE

Incidence of Primary Cesarean Sections among the Pregnant Women whom Admitted to the Teaching Hospitals at Zagazig city

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ABSTRACT

Background: Cesarean section (CS) rates are increasing worldwide; however, it can cause a lot of complications to the mother and the foetus. This study aimed to determine the prevalence of primary cesarean sections over one year among pregnant women who admitted to Zagazig University Hospitals, and Al- Ahrar Teaching Hospital.

Methods: our retrospective hospital record-based study included 1645 women undergone CS in Obstetrics and Gynecology Department at Zagazig University Hospitals and Al-Ahrar Teaching Hospital, in a period of one year from May 2017 to May 2018 and data of CS was collected. we obtained our data from theatre, labour ward, and neonatal ward records using a delivery data collection sheet.

Results. This study showed that Primary cesarean section rate was 17.2% at Zagazig Teaching Hospitals (17% at Zagazig university hospitals and 18% at Al-Ahrar teaching hospital) more in primipara by (70%) as compared to multipara by (30%). The overall cesarean section rate was 61.55% at Zagazig teaching hospitals. Cephalopelvic disproportion and failure to progress are the major indications in primary cesarean section (35.5%). The most common indication in multiparous women was fetal malpresentation (27.5%, 30.68%) at both hospitals while the primiparous cases was cephalopelvic disproportion or failure to progress (43.7%, 41.1%) at both hospitals. Infections (8.4%, 7.53%) and atonic post-partum hemorrhage (6.2%, 5.1%) are the most common complications in primary cesarean sections.

Conclusions: The prevalence of primary cesarean sections over one year among pregnant women who admitted to Zagazig University hospitals and Al- Ahrar Teaching hospital over one year is rising, this was mainly due to mal-presentation followed by failed progress.

Key words: Cesarean section, maternal, mortality, primirarous.

INTRODUCTION

When Caesarean is performed for the first time on a pregnant woman to deliver the baby, this is called primary cesarean section. It is achieved by doing laparotomy, and then hysterotomy to deliver the baby. The rate of cesarean section in United States reaches aproximately one million times annually [1]. Many factors leaded to the high incidence of caesarean section delivery such as better anaesthetics, better technique, different antimicrobial agents, blood transfusion facilities etc. However, caesarean section delivery carries somewhere between 5 and 10 times more risk of complications than that of vaginal delivery [2]. The trend towards caesarean delivery is now increasing worldwide for women of all ages, races, geographic areas, and gestational age [3]. Indications for primary caesarean section deliveries includes both maternal and foetal causes such as: obstructed labour, placenta praevia, malpresentation, fetal distress, dystocia or failure to progress in labour, or it may be performed intentionally without medical indication.

Primary caesarean section carries the risk of cesarean deliveries in next pregnancies. Breech presentation in primigravida also contributed to increase the rate of caesarean section. Also in the private health sector, many obstetricians easily accept patients demand or do not want to take the risk of fetal complication which may happen with vaginal delivery [4]. To control the rising rate of caesarean section, vaginal delivery must be the first strategy especially in a well-equipped hospital.

Globally, there is a woman dies while delivering a baby. The highest rates are in Africa, with a lifetime risk of 1 in 16; the lowest rates are in developed countries (1:2800), with a worldwide ratio of 400 maternal deaths per 100,000 live births

[5]. Maternal mortality has decreased dramatically in last 50 years from 650 per 100,000 births in 1940 to 14.1 per 100,000 births in 1988. In the United States, maternal death associated with caesarean section delivery is rare. In 1980 reported a series of 10000 consecutive caesarean sections with no maternal death. In the confidential enquiry in England, the maternal mortality rate for caesarean section deliveries was 0.8 per 1000 caesarean sections, which is same as reported for 1973-1975, but in 1982-1984 fallen to 0.37 per 1000. It was 10 times more than vaginal delivery [2].

However, maternal death is considered rare in C.S, the maternal morbidity is increased dramatically compared to the vaginal delivery, this is attributed to the increasing incidence of C.S and its complications like, endometritis, haemorrhage, urinary tract infection, bowel injury, and septicemia. Morbidity also increased in obese women [6].

This study aimed to determine the prevalence of primary cesarean sections over one year among pregnant women who had been admitted to Zagazig University Hospitals and Al-Ahrar Teaching Hospital.

METHODS

Our study was done on 1645 women undergone CS who were admitted in Obstetrics and Gynecology Department at Zagazig University Hospitals and Al-Ahrar Teaching Hospital, during the study period from May 2017 to 1st of May 2018. The cesarean sections included in our study were performed after the period of viability which is 28 weeks, including elective and emergency situations of primary cases. We excluded the cesarean deliveries which lack full information, Gestational age< 28 weeks.

The data for the study was collected using delivery data collection sheets which have socio-demographic variables, obstetric history and outcome of caesarean section. Information was obtained from theatre records, labour ward records and neonatal ward records using a delivery data collection sheet. The Data collected was about: Maternal age, Weeks of Gestation, Pregnancy history in form of parity, gravidity, abortions, History of previous normal vaginal delivery if present, The indications of primary C.S (primiparous women were given a trial of CS unless it is contraindicated), the possible complications which may be occurred and neonatal outcome which evaluated by APGAR score at 1 minute and 5 minutes. A score of 0, 1 or 2 is assigned to each of the physical signs at 1 and 5 minutes after birth. The maximum score that can be assigned is 10. Scores ranging from 7-10 are considered normal. If the 5-minute APGAR score is abnormal (<7), appropriate measures should be taken [7].

The study was approved by the research ethical committee of Faculty of Medicine, Zagazig University and Al-Ahrar Teaching Hospital. The study was done according to The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

STATISTICAL ANALYSIS

Was performed using the Statistical Package for Social Sciences version 16.0 (SPSS for Windows 16.0, Inc., Chicago, IL, USA). Regarding quantitative parameters, the data was tested for normality using Shapiro wilk test that revealed that some data were normally distributed, and others were not normally distributed. For qualitative data chi square test was performed. All P values were based on a 2-tailed distribution, and the responding P value; Non-significant (NS) difference if $P > 0.05$. Significant(S) difference if $P < 0.05$.

RESULTS

This study showed that 38.45% of the studied population had normal delivery in comparison to 61.55% cesarean sections. There was significant difference between in Zagazig University Hospitals and AL-Ahrar Teaching Hospitals as regard number and distribution of labors (Table 1).

There was no significant difference between in Zagazig University Hospitals and AL-Ahrar Teaching Hospitals as regard age of patients and weeks of gestation in primary C.S (Table 2). This study showed that most of C.S indications were Cephalopelvic disproportion (detected by clinical pelvimetry and U/S) or failure to progress (35.5%) followed by fetal distress or non-reassuring F.H.R 23.9% (Table 3).

There was no significant difference between Zagazig University Hospitals and AL-Ahrar Teaching Hospital as regard indications in primary C.S (Table 5).

There was no statistically significant difference between in Zagazig University Hospitals and AL-Ahrar Teaching Hospitals as regard complications in primary C.S (Table 5).

This study showed that infection is the most prevalent complication of both C.S among both primiparous and multiparous females in primary C.S of Zagazig University Hospitals (Table 6). It also showed that infection is the most prevalent complication of both C.S among both primiparous and multiparous females in primary C.S of AL-Ahrar Teaching Hospital (Table 7).

Table 1: Number and prevalence of labors in Zagazig University Hospitals versus AL-Ahrar Teaching Hospitals in the period from 1/5/2017 to 30/5/2018

Variable	Zagazig University Hospitals N=6162	%	AL-Ahrar Teaching Hospitals N=3415	%	χ^2	P
Normal vaginal delivery	2464	39.987	1218	35.66	**17.33**	**<0.001****
Total C.S	3698	60.01	2197	64.33		
Primary C.S	1021	17	624	18		

χ^2= chi square test, p value significant if <0.05, *=significant, **=highly significant

Table 2: Age and weeks of gestation among primary C.S in Zagazig University Hospitals versus Al-Ahrar Teaching Hospitals in the period from 1/5/2017 to 30/5/2018

Variable	Zagazig University Hospital N=1021	%	AL-Ahrar Teaching Hospitals N=624	%	χ^2	P
Age						
<20yrs	125	12.3	69	11.0	0.615	0.733
20-35yrs	823	80.6	508	81.5		
>35yrs	72	7.1	47	7.5		
Weeks of gestation						
Preterm<37						
37wks	186	18.2	93	14.9	6.22	0.284
38,39wks	74	7.3	48	7.7		
40wks	472	46.2	312	50.0		
41wks	196	19.2	125	20.0		
42wks	82	8.1	38	6.1		
	10	1.0	8	1.3		

Table 3: Indications of primary C.S in Zagazig Teaching Hospitals

Variable	Zagazig Teaching Hospitals N=1645	%
1-Cephalopelvic disproportion or failure to progress	584	35.5
2-Fetal distress or non-reassuring F.H.R	393	23.9
3-Fetal malpresentation	324	19.6
4-Medical disorder		
a-Preeclampsia or eclampsia	94	5.7
b-Complicated cardiac patient	14	0.8
c-D.M	25	1.5
5-Multiple gestation	63	3.8
6-Suspected fetal macrosomia	23	1.4
7-Obstetric factors		
a-P.previa	33	2.0
b-Abrubtio placentae	16	1.0
c-Rupture uterus	3	0.2
d-Cord prolapse	8	0.5
8-Elective category	28	1.7
9-Fetal anomaly	25	1.5
10-Others	16	1.0

Table 4: Indications of primary C.S in Zagazig University Hospitals versus AL Ahrar Teaching Hospitals in the period from 1/5/2017 to 30/5/2018

Variable	Zagazig University Hospital N=1021	%	AL-Ahrar Teaching Hospitals N=624	%	χ^2	P
1-Cephalopelvic disproportion or failure to progress	364	35.7	220	34.9		
2-Fetal distress or non-reassuring F.H.R	237	23.2	156	25.0	7.52	0.912
3-Fetal malpresentation	198	19.4	126	20.19		
4-Medical disorder						
a-Preeclampsia or eclampsia	63	6.2	31	4.97		
b-Complicated cardiac patient	10	1.0	4	0.64		
c-D.M	18	1.8	7	1.12		
5-Multiple gestation	42	4.2	21	3.37		
6-Suspected fetal macrosomia	13	1.3	10	1.6		
7-Obstetric factors						
a-P.previa	22	2.2	11	1.8		
b-Abrubtio placentae	9	0.9	7	1.12		
c-Rupture uterus	3	0.3	0	0.0		
d-Cord prolapse	5	0.5	3	0.48		
8-Elective category	17	1.7	11	1.8		
9-Fetal anomaly	16	1.6	9	1.44		
10-Others	8	0.8	8	1.28		

Table 5: Complications of the primary C.S in Zagazig University Hospitals versus AL Ahrar Teaching Hospitals in the period from 1/5/2017 to 30/5/2018

Variable	Zagazig University Hospital N=225	% of total deliv.	% of All comp.	Ahrar Teaching Hospital N=118	% of total deliv.	% of All comp.	χ^2	P
1-Infections	86	8.4	38.2	47	7.53	39.8		
2-Atonic post-partum hge	63	6.2	28.0	32	5.1	27.1		
3-Blood transfusion	45	4.4	20	21	3.37	17.8	5.798	0.669
4-Fetal injury	8	0.8	3.5	8	1.28	6.7		
5-Wound comp.	3	0.3	1.3	1	0.16	1.0		
6-Broad lig. hematoma	2	0.2	1.0	1	0.16	1.0		
7-Hystrectomy	6	0.6	2.7	0	0.0	0.0		
8-Anasethia comp.	10	1.0	4.3	6	0.96	5.0		
9-Death	2	0.2	1.0	2	0.32	1.6		

Table 6: Complications of the primary C.S among primiparous and multiparous women of Zagazig University Hospitals

Variable	Zagazig University Hospital N=225	% of all comp.	Primiparous N=101	%	Multiparous N=124	%
1-Infections	86	38.2	40	39.61	46	37.1
2-Atonic post-partum haemorrhage	63	28.0	25	24.75	38	30.65
3-Blood transfusion	45	20	21	20.79	24	19.35
4-Fetal injury	8	3.5	6	5.94	2	1.61
5-Wound complications	3	1.3	1	0.99	2	1.61
6-Broad ligament hematoma	2	1.0	٠	0.0	2	1.61
7-Hystrectomy	6	2.7	0	0.0	6	4.84
8-Anasethia complications	10	4.3	6	5.94	4	3.23
9-Death	2	1.0	2	1.98	٠	0.0

Table 7: Complications of the primary C.S among primiparous and multiparous women at AL-Ahrar Teaching Hospital

Variable	AL-Ahrar Teaching Hospital N=118	% of all comp.	Primiparous N=52	%	Multiparous N=66	%
1-Infections	47	39.8	23	44.2	24	36.4
2-Atonic post-partum haemorrhage	32	27.1	10	19.2	22	33.4
3-Blood transfusion	21	17.8	7	13.5	14	21.2
4-Fetal injury	8	6.7	6	11.6	2	3.0
5-Wound complications	1	1.0	1	1.9	0	0.0
6-Broad ligament hematoma	1	1.0	0	0.0	1	1.5
7-Hystrectomy	0	0.0	0	0.0	0	0.0
8-Anasethia complications	6	5.0	4	7.7	2	3.0
9-Death	2	1.6	1	1.9	1	1.5

DISCUSSION

Despite its complications, CS can save mother and fetus life from severe harm when performed in a correct time and based on correct indications [8]. Primary caesarean section usually determines the future obstetric sequel of any woman and therefore should be avoided wherever possible. The caesarean section rate in our study were 61.55% in our study, as our hospitals are tertiary care centers and receive a high number of high-risk emergency cases with inadequate or no antenatal care. The rising caesarean section rate is a worldwide phenomenon although WHO states that there is no additional benefit associated with rising caesarean section rate of above 15% [9]. In England caesarean section rate was 9% in 1980 which was raised to 21.3% in 2000 Thomas, [10] Shamshad et al, from Hyderabad Pakistan and Shamshad from Abotabad reported caesarean section rate as high as 67.7% and 45.1% in 2007 respectively [11]. While in Egypt the total caesarean sections recognized in 2014 was about 67.3% [12]. Similar studies were done to report the incidence of primary cesarean sections including the following studies to be discussed [13].In our study the primary sections are 17.2% in our study with higher frequency among primipara (70 %) than multiparous (29.9%). Jain et al. [13], said that the most common indication of primary cesarean section in his study was malpresentations (34.3%) followed by meconium stain liquor in first stage of labor (22%) then failed induction is the third common indication with a percentage of (12.7). However, in our study the most common indication is failure to progress and

cephalopelvic disproportion which represents 35.5% then the second most common indication is fetal distress and non-reassuring fetal heart rate tracing which is 23.9% followed by fetal malpresentation including breech presentation which is 19.6%. These results also agreed with multiple other studies [14-17]. Also, we must keep in mind eclampsia and pre-eclampsia as a serious maternal disorder which represent 5.2% at Zagazig University Hospitals and 4.97% at Al-Ahrar Teaching Hospital from the total indications.

In our study, the most common indication among primiparous cases is failure to progress or cephalopelvic disproportion is 35.5% in our study followed by non-reassuring fetal heart rate or fetal distress which is 23.9%. these come in agreement with what was reported by Haidar et al [18], Shamshad [11], and Al-Rifai R [12].

In regard to maternal complication Himabindu et al [14] on primary cesarean section on multipara had fetal distress as an indication by percentage of 24.7% of cases and ante partum hemorrhage as an indication in 11.2% of cases. Regarding to the most common complication Himabindu stated that blood tansfusion is the most frequent complication in multi gravida women that performed primary cesarean section (29%). Similarly, our study results reveal that cases which complicated by atonic post-partum hemorrhage were about (5.65%) and the cases which complicated by infections were (7.9%).About the analysis of maternal age, the cases whom undergone primary cesarean section Jain et al, found the most common group of age was 20-35 years old by percentage of 80.4% which is the same to our study as it represent 79.8%. Also, Boyle et al [20] found that the most frequent age for primary cesarean section cases was 20-35 years old (70.4%) and regarding primiparous cases the most common age group was 25-29 years old (24.2%) while the most common age group in multigravida was 35 years or older by percentage of 28.4%. In our study the most frequent age is from 20-35 years old which represent 81.05% in our study.Birla et al [21] performed a significant study in 2016 to demonstrate the incidence of primary cesarean sections among multigravida and primigravida women and determine the commonest indications and complications for this operation. The collected data based on 4981 deliveries, he found that primary sections was 15% from all these deliveries (63.33% primiparous, 36.67% multiparous). On the other hand, our study resulted in a percentage of 17.2% at both Zagazig hospitals included in our study, so, Birla is near to our results. Birla study found in comparing the indications of primary cesarean sections in primigravida the fetal distress accounted a percentage of 32.2% overall primigravida while it was an indication for 17.45% only in multigravida cases beside that, the second common indication in primigravida and multigravida is cephalopelvic disproportion (13.4%, 13.8% respectively). Ante partum eclampsia was responsible for 4.42% in primigravida cases as compared to 0.73% cases in multigravida.

Regarding the maternal complication stated that multigravida had required blood transfusion in 15.27% which represent the most common complication among these cases followed by atonic post-partum hemorrhage (8.73%). Comparatively, 2.94% cases needed blood transfusion in primigravida while post operative infections represent the most common complication among this group by a percentage of 5.89%.

At level of our study, the most common complication in primigravida and multigravida was infections by percentage of 39.61% for primi para and 37.1% for multi gravida from all deliveries at Zagazig University Hospitals and 38.46% for primi para, 40.9% for multigravida at Al-Ahrar Teaching Hospital. Moreover, the cases which complicated by atonic post-partum hemorrhage were more common in multiparous women by percentage of 30.65% from all complications which done to multiparous women at Zagazig University Hospitals and was 33.4% at Al-Ahrar Teaching Hospital. Himabindu et al [16] on primary cesarean section on multipara had fetal distress as an indication by percentage of 24.7% of cases and ante partum hemorrhage as an indication in 11.2% of cases. Regarding to the most common complication Himabindu stated that blood transfusion is the most frequent complication in multi gravida women that performed primary cesarean section (29%).

Desai et al [15], revealed fetal distress is the most common indication (25.58%) and ante partum hemorrhage is an indication to 22.09% multiparous women whom performed primary cesarean section.

CONCLUSIONS

Our study showed that Primary cesarean section rate was 17.2% at Zagazig Teaching Hospitals (17% at Zagazig University Hospitals and 18% at Al-Ahrar Teaching Hospital) more in primi para by (70%) as compared to multipara by (30%). The overall cesarean section rate was 61.55% at Zagazig Teaching Hospitals. Cephalopelvic disproportion and failure to progress are the major indications in primary cesarean section (35.5%). The most common indication in multiparous women was fetal malpresentation (27.5% - 30.68%) at both hospitals while the primiparous cases was cephalopelvic disproportion or failure to progress (43.7% - 41.1%) at both hospitals. Infections (8.4% - 7.53%) and atonic post-partum

hemorrhage (6.2% - 5.1%) are the most common complications in primary cesarean sections.

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