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CHANGING TRENDS OF INDICATIONS AND RATE OF CESAREAN SECTION: AN AUDIT

1. **FARIDA WAGAN**
2. **GHULAM NABI MEMON**

1. ***Associate Professor,***
Department of Obstetrics & Gynecology,
Peoples University of Medical and Health Science for Women Shaheed Benazirabad, District Nawabshah, Sindh, Pakistan
2. ***Professor & chairman***
Department of anesthesiology
Peoples University of Medical and Health Sciences for women
Shaheed Benazirabad, District Nawabshah, Sind Pakistan.
On job deputation as Consultant Anesthetist, department of anesthesiology & ICU,
King Abdul Aziz University Hospital of King Saud University, Riyadh, KSA.
Email: memongn@yahoo.com,

CORRESPONDENCE
DR. FARIDA WAGAN
Contact: 0092 301-3817416

ABSTRACT

Objective: The objective of this study is to compare the changes, in rate and indication for cesarean section, during 2003 and 2010, after a gap of 7 years and to evaluate, how the implementation of universally acceptable standards, affects rate of cesarean section without compromising maternal and fetal safety.
Study Design: Comparative study.
Place and Duration: Department of Obstetrics & Gynecology at People's Medical College Hospital Shaheed Benazirabad in January 2011.
Material and Methods: In this comparative study, two years data i.e. of 2003 (Group-1) and 2010 (Group-2) was collected from the hospital record. Both groups were compared for cesarean section rate and trends of indications of cesarean section.
Results: The results revealed that, in year 2003, the rate of cesarean section was 29.70 % and in year 2010, it rose to 36.96 %. In both years, the highest indication of cesarean section was multigravida i.e. 46.50 % (n = 400) in year 2003 and 55 % (n = 1011) in year 2010.
During both years, the main indication of cesarean section was previous cesarean section, dystocia, fetal distress, placenta previa and breech presentation.
Conclusion: It is suggested to have obstetric audits by independent marital meetings to assess the intrinsic role of cesarean section in influencing the feto-maternal outcome.

Keyword: Indications of cesarean section, changing trends, Audit.

INTRODUCTION

Cesarean section is becoming a relatively safer procedure in the practice of modern obstetrics. Individualization of every case, meticulous clinical examination, use of intrapartum fetomaternal surveillance along with, regular use of partogram would limit the practice of undue cesarean sections. Obstetric audits following standardized guidelines and practice of evidenced based medicine will help us a lot in reducing the rate of undue cesarean sections.

The improvements in anesthesia services, availability of improvised surgical technique and prophylactic use of antibiotic have made cesarean section a relatively safer procedure in the practice of modern obstetrics. The decision whether to perform a cesarean section or not; is based on the individualized judgment of the obstetrician and the individual hospital policy.

Economical factors and fear of litigation are other considerations, which may indirectly influence such decisions. Audit plays an important role in the analysis of changing trends in cesarean delivery rates. The needs and benefits of such changes have modified the obstetrician's view towards the use of cesarean delivery.

Cesarean section is one of the most commonly performed surgical interventions in modern obstetrics. It is argued that over the past 25 years, there has been a sustained rise in cesarean section rates in the developed world, with massive public interest and debate on both the cause and appropriateness of increasingly employing a surgical procedure to

Table 01:
CESAREAN SECTION RATE

Year	Total SVD	Cesarean Sections	Total	% of c-sections to SVD
2003	2035	860	2895	29.70 %
2010	3135	1838	4973	36.96 %

Table 02:
PARITY-WISE DETAIL

Year	Primigravida	Multigravida	Grand Multigravida
2003	247 (28.72 %	400 (46.51 %)	213 (24.76 %)
2010	589 (32.04 %)	1011 (55 %)	238 (12.74 %)

Table 03:
YEAR WISE INDICATION

Indication	Year	
	2003	2010
Dystocia	145 (16.85 %)	194 (10.54 %
Fetal Distress	105 (12.2 %)	202 (10.99 %)
Previous C/Section	334 (38.83 %)	906 (49.29 %)
Breech	57 (6.62 %)	82 (4.46 %)
Placenta Previa	108 (12.55 %)	120 (6.52 %)
Abruption	26 (3.02 %)	33 (1.79 %)
Neglected Tramaline	28 (3.25 %)	39 (2.12 %)
Non Progress of Labor	80 (9.3 %)	88 (4.78 %)
Multiple Pregnancy	33 (3.83 %)	39 (2.12 %)
Chorioamniotis	25 (2.90 %)	29 (1.57 %)
Failed Induction	42 (4.88 %)	63 (3.42 %)
Post Date	8 (0.93 %)	27 (1.46 %)
P.I.H / Eclampsia	17 (1.97 %)	52 (2.89 %)
Precious Pregnancy / BOH	30 (3.48 %)	48 (2.61 %)
Cord Prolapse	2 (0.23 %)	4 (0.21 %)

short circuit or entirely bypass labor and delivery[1].

Various theories have been put forward for the rising rates of cesarean section these include: fear of litigation, particularly in United States[2]. Lack of midwifery support[3] and a reluctance to implement active management of labour[4, 5]. At least two of reasons for substantial increase in cesarean section rates are expectation and fear. Indeed every physician expects a perfect result from the pregnancy i.e. neither the child nor the mother should suffer damage.

Currently cesarean section rates in Canada and United States of America are close to 25 % [2] and recent statistics for England shows that the cesarean section rate rose from 9 % in 1980 to 18.8 % in 1997–98 and again to 21.3% in the year 2006[6, 7]. World Health Organization reported that rates higher than 10–15 % did not confer any additional health benefits or any benefits in relation to maternal or perinatal mortality[8]. The appropriate use of cesarean section like any other medical intervention should be based on evidence of risks and benefits. There is a known and inevitable increased risk of maternal death and morbidity following cesarean section and there is no evidence that maternal and child health has improved as a result of cesarean sections. The WHO pointed in 1985 that the countries with some of the lowest perinatal mortality rates in the world have cesarean section rate under 10%[8].

The study was conducted because of rising cesarean section rates in developing world particularly in primi-gravidas, as it is worrying, because of its adverse consequences in forthcoming pregnancies due to lack of antenatal and intranatal care by experienced medical staff.

MATERIAL AND METHODS

This study was conducted at Department of Obstetrics & Gynecology, Peoples medical college hospital, Shaheed Benazirabad, Sindh, Pakistan.

Our department of Obstetrics & Gynecology maintains a very precise record of all deliveries. The record of all the patients, who delivered in 2003 and 2010 respectively were collected. All the patients who underwent emergency and elective cesarean sections were included in the study to collect information about demography, gravidity and indications for performing cesarean sections. Only the main indications were included in patients with two or more indications. Dystocia was defined as failure to progress of labor and included all cases of obstructed labor due to fetal or maternal causes.

The percentage of c-section attributable to specific indications was computed for the year 2003 and 2010 respectively and cesarean section rate was calculated for both years.

RESULTS

The results of this audit reveals that: In year 2003, a total number of deliveries performed were 2895; out of which, 860 patients underwent cesarean section thus giving a rate of 29.7 % compared to 4973 deliveries in the year 2010 with 1838 cesarean sections at a rate of 36.96%. Statistical analysis shows.

- There was drastic increase in the rate of cesarean deliveries of up to 10.46 % in year 2010 as compared to year 2003. (may be due to previous cesarean section and associated problem was scar tenderness)
- In year 2003, the cesarean section rate was highest in multigravida 46.5% (n = 400 followed by primigravida 28.72 % (n = 247) and lastly the grand multigravida 24.76% (n = 213).
- In year 2010, cesarean section rate was still the highest in multigravida 55 % (n = 1011 followed by primigravida 32.04 % (n = 589) and lastly grand multigravida 12.74 % (n = 238).
- In the year 2003, main indication for cesarean section was previous cesarean section, dystocia, fetal distress and placenta previa.
- During year 2010, the main indications for cesarean section were previous cesarean section 906 (49.29 %), fetal distress 202 (10.99 %), placenta previa 6.62 %, dystocia 145 (16.85%) and breech 82 (4.46 %).
- The main indication for both years study was previous cesarean section followed by dystocia and fetal distress.
- The % of cesarean section performed for previous cesarean section has shown a rise of 49.29% (906) in 2010. This could be because of not taking risk by obstetricians and patients.

DISCUSSION:

Increasing rates of cesarean delivery has been a public health concern nowadays. This increase in rate of cesarean section has been a global phenomenon, the timing and rate of increase has differed from country to country and difference in rate persists. In 1985, the WHO issued a consensus statement suggesting that there were no additional health benefits associated with cesarean section rate above 10 – 15% [9].

Cesarean section is one of the oldest operations performed, in the past it was usually performed for maternal reasons but nowadays frequently performed for fetal reasons in addition to maternal reasons. Many obstetricians prefer it mainly because of fear of litigation. Being a major surgical intervention it is associated with significant immediate and delayed maternal morbidity and mortality. There is increase maternal morbidity associated with intraoperative blood loss, infection, prolonged hospital stay, adhesion formation to chronic pelvic pain, infertility and higher risk of abnormal placental adherence and ectopic pregnancy in subsequent pregnancies. The increase morbidity is about 5 to 10 times that for vaginal birth[10].

Elective cesarean section performed before onset of labor inevitably leads to the baby being born earlier and of lower birth weight with transient tachypnoes and respiratory distress[11].

In terms of cost to the healthcare system Banta and Tacker estimated the net additional cost of doing a cesarean section in 1977 to be USD 2300 [12]. There figures are much higher today because of increased costs of medical care. In addition, to the cost of medical care, a physician fee for doing a cesarean section is roughly a third of higher vaginal delivery[13]. Many studies have found clear positive association between socioeconomic indicator and proportion of cesarean section[14, 15].

The components of cesarean section are of the view, that cesarean section is increasingly safe for women and children and the rate of pelvic floor problems particularly urinary incontinence is subsequently higher in women, who had vaginal deliveries than in women who had cesarean section[16, 17].

There was a rise in cesarean section rate by 7.18% in the year 2010. The cesarean section rate in our study has increased from 29.70 % in 2003 to 36.98 % in 2010. There has been a steady rise in cesarean section rate throughout the world. A study conducted in Latin America has shown that 12 countries had cesarean section rate below 15 % while remaining 12 countries had rates above 15 % (Range 16.8 % to 40 %)[18].

A study conducted in tertiary care hospital in Pakistan has shown cesarean section rate of 21.07 %[18]. Another study in Pakistan reported cesarean section rate as high as 67.7 % and 45.1 % in the year 2007[19, 20]. Similar rise was seen throughout the world as Rent kow IM reported cesarean section delivery 21 % of all live birth in U.S in 1984, this rate increased up to 24.4 % in 2001 as reported by Martin JA et al[21, 22]. In 1980, the rate in England was 9 % increasing to 21.3 % in 2000[23, 24]. Similar facts reported by Murray SF and Serani Pradenas F regarding cesarean section birth in Chile, the incidence increased from 27.7 % in 1986 to 37.2 % in 1994[25]. In Brazil reaching up to 56 % in[26]. Dinas K et al reported cesarean delivery rate of 35.5 % in 2006 in a teaching hospital of Greece[27].

In our study, the cesarean section rate due to previous one or more than one cesarean sections was 38.83 % (334) in 2003 and 49.29 % (906) in 2010. Approximately one third cesarean section were done due to previous one cesarean section and associated factors like scar tenderness, our findings are consistent with finding of study at Hyderabad Pakistan and from Peshawar where the reported incidence of repeat cesarean section is 19.2 %, 29.87 % [19, 28] respectively. In another study at Lahore, the incidence of repeat cesarean section was 5.8 %, with one of the three leading indications of cesarean section[29]. In another study at Karachi which reports repeat cesarean section was the commonest indication for cesarean section[30].

Peoples Medical College Hospital, Nawabshah is a tertiary care, public sector hospital, which deals with large number of referred and complicated cases and provides obstetric care free of cost. This is one of the important reasons for increasing number of repeated cesarean section in our department.

In our study, dystocia (failure to progress) although its contribution to over all cesarean section rate has fallen from 16.85% in 2003

to 10.54 % in 2010. These results are consistent with 1962 and 1992 statistics in a teaching hospital in Glasgow UK, showing 42.2 % versus 36.7 % of cesarean section being performed for failure to progress[31]. Another study from Pakistan has shown dystocia to be the main indication for 28.2 % of deliveries[32].

Placenta previa, an indication for cesarean section in 2003 was 108 (12.55 %) and in 2010 it is responsible for 120 (6.52 %) cases of cesarean section. In Warsaw study index of placenta previa decrease from 2.49% in 1985–86 to 0.57 % in 2000–01[33]. A study conducted in Singapore General Hospital, comparing two times period in 1998 and 2001 has shown that increase in cesarean section rate in 2001 was attributed to statistically significant increase in cesarean section for previous cesarean section and placenta previa major[34]. More cesarean sections were performed in 2003 for fetal distress as compared to 2010 (12.20 % as compared to 10.99 %). In Glasgow study, it was second commonest indication for the year 1962 and 1992 (18.1 % versus 8.9 %). A study carried out in a tertiary care hospital in India, it was also the 2nd leading cause for cesarean section about 22.2 %[35].

Cesarean section rate due to severe pre-eclampsia and eclampsia were found to be increased up to 2.89 % in 2010 as compared to 1.97 % in 2003. Probably due to late referral to tertiary care hospital and lower threshold of obstetrician for cesarean section. In a study conducted in Warsaw, fetal distress was the leading indication for cesarean section in 1985 – 86 and 2000 – 01 (14.35 % and 18.57 %. The study in tertiary care hospital in Pakistan has shown fetal distress to be second leading cause of cesarean section (22.18 %). This rise in cesarean section could be attributed to fetal monitoring facilities in labor suits. Haverkemp and colleagues and leveno and coworker have shown a higher cesarean section rate for fetal distress, when the use of continuous electronic fetal monitoring is compared with intermittent auscultation of fetal heart[36, 37].

The relationship between rising cesarean section and perinatal mortality is not consistent, questioning whether cesareans section benefits the newborn baby [38]; cerebral palsy has not been shown to fall as a result of increasing cesarean section rate[39]. Brain damage can occur without difficult labor or perinatal hypoxia and cesarean section is not guarantee against it.

CONCLUSION

In conclusion, it would be ideal to initiate obstetric audits by independent meetings to assess the intrinsic role of cesarean section in influencing the feto-maternal outcome. Use of standardized management guidelines and practice of evidence based obstetrics would definitely go to a long way in balancing the rates of cesarean sections.

The hospitals should constantly audit their cesarean section rates and discussing them on a case to case basis to determine, whether an alternate route of delivery would have resulted in accomplishing the same goals of maternal and fetal safety.

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