ORIGINAL ARTICLE

FACTORS LEADING TO INCREASED CESAREAN SECTION RATE

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ABSTRACT

Background: There is public health concern about increasing cesarean section rate. This study was conducted to evaluate cesarean section rate in our set-up.

Material & Methods: It was descriptive study carried out in Gynae B unit, Ayub Teaching Hospital, Abbottabad, from January 2006 to December 2007. Patients who underwent cesarean section were included. Details of age, social status, parity, antenatal booking, onset of labor, prior intervention, reason for referral and fetal condition were explored.

Results: During study period 2934 deliveries occurred with cesarean section in 1325(45.1%); elective 412(31%) and emergency 913(68.9%). Antenatal booking was done in 67(5%). Education level of mothers was primary level in 94 (7%). Maternal age ranged 20-45 years. Social status was poor in 860(65%) and lower middle class in 465(35%). Regarding parity, primigravida were 492(37.1%), multigravida 560(42%) and grand multigravida 273(20.6%). Distance of referral areas ranged 10-270 kilometers. First level care providers were Daies 495(37.3%), Lady Health Workers 335(25.2%), General Practioners 229(17.2%) and no care 270(20.3%). Prior intervention included oxytocin infusions 599(45.2%), prostaglandins 245(18.4%), instrumentation 53(4%) and no intervention 430(32.4%). Indication for cesarean was repeat cesarean 282(20.5%), obstructed labor 257(19.3%), fetal distress 191(14.4%), failure to progress 159(12%), breech presentation 136(10.2%), hypertensive disorders 136(10.2%), antepartum hemorrhage 91(6.8%) and post date pregnancy 47(3.5%).

Conclusion: Cesarean section rate is quite high (45%) in indigent population in our set up. The low level skill of primary care providers and injudicious use of oxytocics are the main factors responsible for this high rate.

Key words: Cesarean section, Cesarean section rate, Breech presentation.

INTRODUCTION

For the last 30 years, there has been a public health concern about increasing cesarean section rates (CSR). The increase has been a global phenomenon. CSR in USA is 29.1%[1], England 21.5 %[2] and in Latin American countries 40%.[3] Medical, legal, psychological, social and financial factors play a contributory role. The demographic and clinical characteristics of population like maternal age,[4,5] ethnic origin,[6] previous scar,[7,8] breech presentation,[9] pre-maturity and induction of labor[10,11] can greatly influence CSR.

Cesarean section (CS) is a major surgery and increases the short and long term adverse effects for mother and baby. A high CSR do not confer additional benefits but have resource implications for health services.[12,13] The justification for rise in CSR is difficult to prove, not only in economic terms but also in terms of fetal and maternal morbidity and mortality.

Wide variations exist between different regions and maternity centers, suggesting clinical uncertainty and variation in practice.[2] There is no consensus about what the ideal CSR should be, however World Health Organization states that no additional health benefits are associated with a CSR above 10-15%. Many countries have recognized high CSR as a major public health problem and are introducing measures to reduce it. Leitch stated that indications for CS should be the focus of study that lead to increased rate.[14]

The purpose of this study was to know the cesarean section rate and to evaluate the factors leading to increased CSR in our set up and to adopt preventive measures to safely reduce it.

MATERIAL AND METHODS

This study was conducted in Gyne/obs Department, Ayub Teaching Hospital, Abbottabad, Pakistan, which is a tertiary care hospital where majority of patients are referred from periphery, other districts, private clinics and Government hospitals. All the patients admitted through emergency and outpatients department from 1st January 2006 to 31st December 2007 were included. Patient's demographic details included age, socio-economic status, parity, period of gestation, antenatal care, stage of labour, fetal condition at admission, reason for cesarean section and prior intervention before admission to the hospital. Details also included onset of labour, spontaneous or induced, oxytocic infusions, instrumentation and reason for referral.

RESULTS

Table-1: Distribution of deliveries during two years. (n=2934)

Type of Delivery	No. of patients	Per-centage
Vaginal Deliveries	1459	49.7
Instrumental Deliveries	81	2.76
Assisted Breech Deliveries	69	2.35
Cesarean Sections	1325	45.1

Table-2: Mode of cesarean section. (n=1325)

Mode	No. of patients	Per-centage
Elective	412	31.0
Emergency	913	68.9

A total of 2934 patients had deliveries during the two years study period. Distribution of various types of deliveries is shown in Table-1 and mode of cesarean section whether elective or emergency in Table-2.

Maternal age ranged from 20 to 45 years. Socio-economic status showed 860 (65%) poor and 465 (35%) lower middle class. Antenatal booking was done in only 67 (5%) and education status was also poor 94 (7%) had only primary level education. The proportion of gravidity is shown in Table-3, distance of catchment area in Table 4, first level care provider in Table-5, prior intervention in Table-6, indication for CS in Table-7 and details of repeat sections in Table-8.

Table-3: Gravidity status.

Gravidity	No. of patients	Per-centage
Primigravida	492	37.1
Multigravida	560	42
Grand Multigravida	273	20.6

Table-4: Distance of referral areas.

Districts	Distance
Abbottabad	10 – 25 km
Haripur	35 – 50 km
Mansehra	25 – 75 km
Battagram	97 – 110 km
Besham	110 – 170 km
Kohistan	235 – 270 km

Table-5: First level care provider.

Care Provider	No. of patients	Per-centage
*Daies**	495	37.3
Lady Health Workers	335	25.2
Doctors (General Practitioner)	229	17.2
No care	270	20.3

*A *dai* is a local delivery assistant, usually uneducated.

Table-6: Prior intervention.

Intervention	No. of patients	Per-centage
Oxytocic infusions	599	45.2
PGE2 inductions	245	18.4
Instrumentation	53	4.0
No intervention	430	32.4

Table-7: Indications for Cesarean section.

Indication	No. of patients	Per-centage
Repeat Cesareans	282	20.5
Obstructed labor	257	19.3
Fetal Distress	191	14.4
Failure to progress	159	12
Breech presentation	136	10.2
Hypertensive disorders with pregnancy	136	10.2
Antepartum hemorrhage	91	6.8
Post dates pregnancy	47	3.5

Table-8: Repeat Cesarean sections. (n=282)

Previous Cesarean	No. of patients	Per-centage
One CS	177	62.70
Two CS	74	26.20
Three CS	29	10.20
Four CS	2	0.70

DISCUSSION

Worldwide increase in CSR has become an international public health concern. The rates have increased from 5-7% in 1970 to 25-30% in 2003.[15] Increased CSR in developed world is largely due to fear of litigation, health insurance system, CS by choice, increased use of electronic monitoring and increased proportion of breech deliveries by cesarean section. In our set up increased CSR is not the result of medico-legal concern or health insurance system. Patients are not given the autonomy of decision making but the health personnel play the key role in patients decisions.

Our study revealed a CSR of 45% which is quite higher as compared to other local studies (20% and 26%.[16,17] The rate of 40% has been reported for Chile.[3] Our high CSR is due to high rate of emergency sections (68%), where referral cases are managed from 5 districts and their peripheries as it is the only tertiary care facility in Hazara Division. These emergency cases receive trial in low resource setups either by daies, lady health workers and general practitioners. Further trial of labor is not possible in such cases. Increased rate of emergency cesareans increases complications in labouring women in present and future pregnancies as 67% of women will have further cesarean section.[2] A vicious cycle results whereby high cesarean section rates fuel further loss of confidence and raise CSR, making elective cesarean relatively more attractive.[18]

Socio-demographic details of our study revealed poor socio-economic status, lack of education and lack of antenatal care. This greatly influences their pregnancies outcome and management. It sets a vicious circle of poor pregnancy outcome complications morbidity and mortality.[19]

The most common indication in our study was repeat CS (20.5%). The decision of primary CS is important.[16,17] Unless there is a clear, compelling and well-supported justification for CS a carefully supervised justified trial of labor is necessary. Trial of scar in singleton pregnancies can be given to reduce rate of repeat cesarean section as the risk of uterine rupture is low 0.3%.[20] Successful vaginal birth after cesarean section (VBAC) in grand multiparous does not lead to increased maternal complications.[21] In our study large proportion of patients were having previous one cesarean (62%) which could be a candidate for VBAC provided optimal antenatal evaluation was done. Some studies have reported 35% success of trial of scar in previous more than one cesareans.[22,23] In our setup no trial was given to previous two or more scars due to presumed risk of maternal /fetal complications.[24]

The second most frequent indication observed in our study was obstructed labour (19.3%), these were mostly due to mishandling by daies, injudicious use of oxytocics or unjustified induction with prostaglandins without prior assessment of risk factors, fetal size, presentation, stage of labour, position and pelvic adequacy. Current research suggests that labor induction make a cesarean section more likely among first time mothers when cervix is unfavorable.[25,26] A longer intrapartum course leads to over utilization of resources, obstructed labor, maternal and fetal distress and ruptured uterus. Proper evaluation of patients plays a key role in decision making and prevents unnecessary interventions. Use of partogram helps in early diagnosis of abnormal labour patterns and timely management.[27] Antenatal diagnosis of malpresentations and their effective management greatly prevents obstructed labor. Similarly oxytocic infusions lead to fetal distress and dysfunctional labor when given in false labor or in latent phase of labor.

Fetal distress accounts for 14.4% of cesarean sections. Fetal distress, dystocia and previous cesarean account for most cesarean sections[28] as is apparent from our study as well. Fetal distress was diagnosed by fetal heart rate and presence of meconium. The diagnosis of fetal distress is often subjective and lacks standard clinical criteria in different health facilities.[29] Continuous electronic fetal monitoring has been associated with greater likelihood of a cesarean. Precise interpretation of fetal heart tracing and use of fetal Ph might be effective in reducing cesarean section rate.[30]

12% of cesareans are due to failure to progress of labour where malposition, relative cephalopelvic or fetopelvic disproportion lead to failure of progress. Another factor is induction of labour on unripe cervix. Cervical dilatation is the most important predictor of success.[31] Early diagnosis of adequate progress of labour through partogram, timely amniotomy, judicious use of oxytocin and increased involvement of senior staff can reduce events of failed progress leading to cesarean section. O, Driscoll active management of labour can reduce cesarean section rate.[32] Safe use of ventouse and its mechanism of autorotation can correct malpositions and minor disproportions.

Some 10.2% of cesarean in this study are for breech presentation. A feature of modern obstetrics is increased rate of elective cesarean for breech. In some countries CSR for breech is now of the order of 80%.[33] This trend has implications not for the index pregnancy but increases the chance of repeat CS in subsequent pregnancies.[33] Practice of external cephalic version to turn a breech baby to head first position reduces the likely hood of a CS. Danielian in his study recommended policy of selective, planned vaginal delivery for breech with no increase in infant morbidity.[34]

Hypertensive disorders of pregnancy accounted for 10.2% of cesareans in this study. These were for eclamptic patients with poor bishop scores, severe pregnancy induced hypertension and intrauterine growth restriction. Good antenatal care can detect such problems earlier and early management can prevent the complications. As a CS carries 8 fold higher mortality than vaginal delivery and 12 times higher morbidity,[35] these high risk cases should be assessed on risk /benefit ratio. CS without obstetric indication should be reconsidered to lower cesarean section rate.[36]

Antepartum hemorrhage contributed to 6.8% of cesareans in our study. These were cases of major degree placenta preavia and those with severe abruption where maternal condition precludes unnecessary delay. Vaginal delivery is contraindicated when placenta is encroaching within 2 cm of internal OS.[37]

Post date pregnancy represents some 3.5% indications for cesarean section, performed to avoid perceived risk of fetal distress /jeopardy during labor or to avoid prolonged labors. The undisputed existence of complications in a minority of labors does not justify medical intervention or prophylaxis.[38,39] In such cases the role of obstetrician in patients counseling is important regarding mode of delivery rather than pressing upon the need for cesarean section. There is currently no evidence that elective cesarean is safer than labor. Until evidence supports medically elective cesarean section as a birth option that optimizes outcome for low risk mothers and their infants, obstetric care providers should continue to support evidence based decision making that includes advocacy for vaginal delivery as the optimal mode of birth.

CONCLUSION

Cesarean section rate is quite high (45%) in indigent population in our set up. The low-level skill of primary care providers and injudicious use of oxytocics are the main factors responsible for this high rate.

It can be reduced by proper antenatal evaluation, prevention of unjustified induction, avoidance of bolus oxytocic drugs in false and latent phase of labor and by creating awareness at primary care level for timely referral and minimal intervention.

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