

RISING CAESAREAN SECTION RATE; MAKING SENSE OF IT, IS IT UNAVOIDABLE?

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ABSTRACT... Objective: Compare indications for caesarean section in Military Hospital Rawalpindi in the year 1999 with the year 2005, six years apart, with an aim to identify areas where caesarean section rates could be decreased. **Study design:** Prospective Survey of caesarean section using information provided by doctors/midwives entering data in labour ward /theater registers. **Methods:** The study was designed as a process evaluation. Indication for caesarean section, parity, previous caesarean section, emergency / elective, labour / pre labour, presence of previous caesarean section scar, induced or spontaneous labour were noted. Data was plotted into 2 separate classifications and indications compared across the 2 years 1999 versus 2005. Statistical significance was calculated and value of <0.05 was considered significant. **Results:** Overall section rates rose from 16.9% to 34.6% which showed almost doubling of rates in a span of 6 years. The chief contributors to rising rates were as follows. Caesarean section rate rose from 132 (2.2%) to 355 (4.6%) for previous one Caesarean section ($p<0.001$), from 172 (2.9%) to 383 (5%) for previous >1 caesarean ($p<0.001$), that for nullipara increased from 203 (3.3%) to 632 (8.3%), prelabour or induced labour ($p<0.001$) and for dystocia from 150(2.5%) to 490 (6.4%) which was again significant ($p<0.001$). Increase in section rate for antepartum haemorrhage, diabetes, previous infertility and intrauterine growth restriction was insignificant. **Conclusion :** A decrease in the number of caesarean sections may be achieved by reducing the number of primary caesarean section and/or encouraging more patients to take a trial of scar. A decrease in induction rates may also lead to lowering of caesarean section rates.

Key words: Caesarean section rates, Audit, Indications.

INTRODUCTION

Steadily increasing rates of caesarean section (CS) have evolved into one of the most widely debated topics relating to maternity care. Numerous publications in medical literature have featured debates over how / or whether rates should be reduced. The rates have been increasing rapidly over the past two decades in both developed and developing countries^{1,2}. The rates increased from 15% in 1999 in UK to 22% in 2005³. In France it increased from 10.7% in 1981 to 15.3% in 2001⁴. In the US although stable for more than 15 years the rate is still high at 26%⁵. The epidemic is not limited to developed countries with rates as high as 40% in Latin

America⁶. In Sweden, Denmark and Netherlands the CS rate is around 12% with some of the worlds lowest maternal and perinatal mortality rates^{7,8}.

A relationship between increase in caesarean section rate and improvement in pregnancy outcome has not been established.

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Several countries have low rates of caesarean section and perinatal mortality^{9,10}.

Also caesarean section is associated with higher maternal and perinatal mortality¹¹. Historically as the caesarean section rates rose and crossed the 15% mark the world health organization has suggested an upper limit. Safe vaginal delivery is associated with less maternal and neonatal morbidity and leads to enormous cost saving. The indications for CS seem to be difficult to standardize. There should be one main indication rather than a list, using agreed classification so that comparisons can be made between units and across countries.

The operation is easier to perform than it used to be in previous years¹.The increase in women dissatisfaction with long labours has resulted in lowering the threshold for caesarean section¹¹.

METHODS

The study was designed as a process evaluation. It was conducted in MH Rawalpindi with an obstetric load of 6000 to 8000 deliveries per year. The labour ward and theater registers were explored for the year 1999 and 2005 and indication for caesarean section in each case ascertained along with patient’s parity, presence and number of previous CS scar, whether labour was natural or induced or section was prelabour, elective or in labour. In case more than one indication was cited the leading indication was noted and case catalogued accordingly. In some cases with poor documentation patient’s documents had to be hand searched after retrieval.

Using this data two separate classifications were tabulated. The first was indication based- with 14 point criteria looking for the chief indications. The second was parity /induction based- a ten point break down based on patient parity, presence of previous CS scar and preterm CS. Dystocia was defined as prolonged difficult labour ,non progress of labour (including that due to cephalopelvic disproportion/malposition where mentioned) and failed induction of labour. Diagnosis of fetal distress prelabour was made by non-reassuring

CTG trace, abnormal biophysical profile or abnormal Doppler. Fetal distress in labour was diagnosed by nonreassuring CTG trace, bradycardia and /or meconium stained liquor.

The percentage in each case was calculated to see what percentage of CS in that year were attributable to a particular indication. Statistical significance was attributed when $p < 0.05$ in each case.

RESULTS

Analyses showed that overall CS rate rose from 16.9% in 1999 to 34.6% in 2005 which is an astounding doubling of CS rates (Table I).

Table-I. Caesarean Sectional			
	1999	2005	P
No. of deliveries	6052	7581	
No. of CS*	1028	2652	
CS rate	16.9%	34.9%	<0.001
<i>*CS: Caesarean Section.</i>			

There seemed to be a great escalation in CS rate in all except intrauterine growth restriction, abnormal lie, previous infertility and abruptio placentae and diabetes. These indications were overshadowed by other indications. (Table II), The highest upward trend was noted for fetal distress in labour 85(1.4%) versus 318(4.1%) , dystocia 150 (2.5%) versus 490 (6.4%) , previous one CS 132 (2.2%) versus 355 (4.6%), fetal distress prelabour 72 (1.1%) versus 232(3%) in this order, for all these $p < 0.001$.

The 2nd part of classification focused on parity/induction status (Table III). There was some increase in section rate for primipara in spontaneous labour 80(1.3%) versus 194(2.5%) but the increase was dramatic for primipara induced or prelabour 203 (3.3%) versus 632(8.3%), multigravida induced or prelabour 162 (2.7%) versus 477(6.2%), previous CS and now cephalic 262 (4.4%) versus 695 (9.5%). The frequency of caesarean section

was the same in breech primipara and those with abnormal lie but was more in multipara without scar though this added only a small chunk to the overall CS rate (0.2% to 0.7%). There was also an increase in

preterm section rate (0.4% to 1%) and also for Bad Obstetric history (BOH). This was not a major contributor to the overall CS rate.

Table-II. Classification no 1: indication for Caesarean Section

	1999		2005		P- Value
	No of Women	%	No. of women	%	
Total population	6052		7581		
CS	1028	16.9	2625	34.9	<0.001
Bad obstetric history	54	0.89	157	2	<0.001
Previous infertility	15	0.24	30	0.38	0.17
Diabetes	18	0.29	29	0.51	0.05
PIH	75	1.2	169	2.2	<0.001
Placenta Praevia	47	0.84	61	0.8	0.74
Abrupto placenta	23	0.28	29	0.38	0.78
Elective breech	93	1.53	247	3.2	<0.001
Fetal distress prelabour	72	1.1	233	3	<0.001
Fetal distress in labour	85	1.4	318	4.1%	<0.001
Dystocia	150	2.5	490	6.4	<0.001
Repeat CS* previous 1	132	2.2	355	4.6	<0.001
Previous >1	172	2.9	383	5	<0.001
intrauterine growth restriction	30	0.4	50	0.6	0.79
Abnormal lie	62	1	75	0.9	0.84

CS: Caesarean Section. Percentages have been rounded off.

Table-III. Classification no 2 (parity based)

	1999		2005		P
	No. of women	%	No. of women	%	
Total population of deliveries.	6052		7581		
CS	1028	16.9	2625	34.9	<0.001
Primipara					
Spontaneous lab	80	1.3	194	2.5	<0.001
Induced or prelabour	203	3.3	632	8.3	<0.001
Breech	95	1.5	143	1.8	0.18
Multipara Cephalic					
Spontaneous, without scar	82	1.37	184	2.4	<0.001
Induced/ prelabour, without scar	162	2.7	477	6.2	<0.001
Previous CS*	262	4.3	695	9.1	<0.001
Multiparous breech					
With scar	30	0.51	65	0.8	0.01
Without scar	12	0.2	54	0.7	<0.001
Multiple pregnancy with CS scar	11	0.18	28	0.3	0.04
Abnormal lie	62	1.0	75	0.98	0.84
Prev CS <36	29	0.5	78	1	<0.001

DISCUSSION

The increase in CS rate in MH Rawalpindi between 1999 and 2005 was due to lowering of threshold for CS along with a natural rise in population of previously sectioned women. As CS rate for complicated cases like diabetes, previous infertile women, antepartum haemorrhage did not increase significantly, so the population of high risk women did not increase dramatically. Our sample size was large enough to analyze the role of various risk factors, though sample was bigger in 2005. We did not link CS rate to age or education⁴ as in other studies.

Primipara

Primiparous women undergoing CS made a big 35% contribution to the CS rate. This was less than the Scottish¹² audit but this was because the primiparas constituted a smaller percentage of our obstetric population compared to Scottish study as women in West have a low parity. The most significant increase was in nullipara induced or prelabour. It is a known fact that

induction increases section rates in primiparas so inductions should be carefully planned¹¹.

Multipara

Multipara in spontaneous labour made the smallest contribution to the CS rate. Multipara without CS scar that were induced made a sharp increase in section rate. It was also marked in multiparous breech without scar. Thus increase in CS was noted in both high and low risk groups (except those in spontaneous labour) similar trends were noted in Netherlands and California and the same is true for Finland¹.

Previous CS

There was an increase in CS rate for previous one CS scar. It is evident that while CS is doctor friendly vaginal birth after previous CS is not. Royal College of Obstetricians and Gynaecologists strongly promotes trial of scar in previously sectioned women¹⁰. Inadequately informed women choose CS to avoid painful natural

childbirth. While CS on demand was not a pure contributor in our study to the CS rate it does slant the decision of obstetrician. This then leads to lower threshold for CS. CS on patient request is a dangerous luxury. FIGO¹³ states that performing CS for non medical reasons is ethically not justified¹⁴. In contrast to our study the overall rate of CS decreased in Sweden¹⁵. This was because of decrease in repeat CS and stabilization of previously sectioned women. A study from Korea showed that public release of information on CS rates reversed the ever increasing trends. This could be a way forward. Also a UK national audit⁹ confirmed that significant proportion of women wanted more information on risks and benefits of CS. If such information was provided clearly it could lead to a decline in CS rates.

Fetal Distress and Dystocia

Regarding fetal distress and dystocia the diagnosis is more subjective than objective. This was seen in both primiparas and multiparas and had a major effect on trends in CS. This shows a general quick to do CS approach. It is also said to be linked to daylight obstetrics for obstetrician's convenience¹². This could be coupled to increased availability of electronic fetal monitoring in MH and increasing number of screening procedures prelabour. After reviewing this data we do not expect a decrease in caesarean section rate as the proportion of previously sectioned women continue to rise.

Epidural analgesia was a factor in the French audit⁴ but not in our study. Dystocia often results from attempts at induction of labour and so they run in direct proportion to CS rates. It has been suggested that CS rates are high because of fear of litigation as they say the cost of performing a CS is high but the cost of not performing it could be even higher. The high rates of CS however have not decreased litigation. Defensive obstetrics violates the basic principle of medical practice¹².

In order to reduce CS rates fortnightly critical analyses of labour ward data is being performed with focus on high risk areas in our unit. Carefully supervised trial of scar should be enthusiastically encouraged. Appropriate changes to labour ward management are being made.

This has led to stabilization of CS rates in our unit which has not increased any further. The study did not link CS data to perinatal outcome. Any lowering of perinatal data should be should be judged in the light of perinatal outcome^{16,17}. Factors related to clients like educational status were not explored either as in other studies⁴.

CONCLUSION

The CS epidemic is a reason for immediate concern and deserves international attention. The survey has identified that CS rates have doubled. Part of this increase is due to lowering of threshold as it has affected both high and low risk women. Any debate on risk and benefits must include potential for long term risks of repeat CS. Previous CS, dystocia, and fetal distress account for most CS. These should be performed with due respect to correct decision and unbiased opinion. It is of paramount importance to decrease both primary and secondary CS rate for long term stabilization of CS rates.

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**Take risks: If you win,
you will be happy;
if you lose, you
will be wise.**

Anonymous