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OUR EXPLODING CESAREAN RATES: A SYSTEM FOR AUDITING

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ABSTRACT: OBJECTIVE: To identify the groups of women contributing most to the cesarean section rate. **METHOD**: An analysis of 480 cesarean deliveries conducted at SUT Academy of Medical Sciences over a period of 2yrs (Jan2010-Dec2011) was done with Robson classification system. **RESULTS**: Group 2, 4 and 5 are really driving our cesarean rate i.e., the first time pregnant women, induced women and the women with previous uterine scar. **CONCLUSION**: Analyzing the cesarean section rates is very important as this will help us to develop appropriate guidelines to reduce our exploding rates of cesarean section.

KEYWORDS: Cesarean section, cesarean section rate, Robson's classification.

INTRODUCTION: Cesarean Section (CS) is one of the most common major surgical procedures in health care services. Over the last few decades a consistent increase has been observed in the rate of cesarean deliveries in most of the developed countries and in many developing countries. Decreasing the overall cesarean delivery rate continues to be a major goal for obstetricians. For this the cesarean deliveries have to be audited and reviewed. The World Health Organization (1985) stated that no region in the world is justified in having a cesarean section rate greater than 10–15 %.[1] The WHO officially withdrew this recommendation of a 15% C-section rates in June 2010. Their official statement read "There is no empirical evidence for an optimum percentage. What matters most is that all women who need cesarean sections receive them."[2]

THE CHANGING TRENDS: The United States C-section rate was 4.5%(1965) when it was first measured. Since then the CS rate has been steadily increasing as 20.7% in 1996, to 23% in 2000, to 31.1% in 2006[3], to 32% in 2007.[4] and 34% in 2010. A study from Su fung et al (2007) shows that in high income countries like Australia, US, Germany, Italy & France the rates have gone up phenomenally. A similar scenario has been noticed in the developing countries. China has been cited as having the highest rates of C-sections in the world at 46% as of 2008. The increase in CS rate is now a global phenomenon.

India is also experiencing a rapid increase in CS delivery along with an increase in institutional deliveries and growing access to gynecological and obstetric care. Reliable data on the incidence of CS is available only from the National Family Health Survey (NFHS) conducted from 1992- 93 showing an upward trend in CS rates.[4] At the all India level the rate has increased from 2.9% of childbirth in 1992-93, to 7.1% in 1998-99, to 10.2% in 2005-06 and further to 18% in 2010. Over the last 15years the increase in CS delivery has been substantial in many states.

An analysis of NFHS data shows that the rate of this form of delivery in states like Kerala, Goa, Andhra Pradesh, West Bengal, and Tamil Nadu is alarmingly high. The wide heterogeneity in the incidence of CS rate across states and regions is alarming. Table 1 shows 7 out of the 19 states reports over 15% or more CS child birth. The study conducted by Kerala Federation of Obstetrics and Gynecology (KFOG) in 2008 by Rajasekharan et al gives a C-section rate of 35.92%.

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Why this upward trend?

It is difficult to conclusively predict the reasons for the dramatic increase in CS rates as they are not obvious and somewhat complex. The indications for performing CS have changed a lot in recent years and keep on changing for varied circumstances.

This rise has been attributed to several different factors like

- Surgical delivery of breech
- Previous uterine scar
- Increase in maternal age
- Increase in maternal risk factors
- Increase in fertility treatment
- "Daylight" or "defensive" obstetrics
- Patient request…….

There are number of risks associated with cesarean section – both for the mother and the baby and over short term and long term. Therefore a rising rate is regarded as clinical risk, and it is important to investigate the appropriateness of cesarean sections. Local audit of CS practice is the fundamental importance in monitoring and controlling CS rates. In 1996 Robson et al published a report on 'using the medical audit cycle to reduce CS rate' [5]. Robson's viewpoint on the issue of a CS rate is that we should be concerned, not at what the CS rate should be, but, what the true section rate is now and why?

He described '10 clinically relevant groups of women' into which an entire obstetric population could be subdivided. He categorized the population of pregnant women requiring cesarean delivery and then compared cesarean rates among equivalent subpopulations. He is not trying to suggest that the 10 groups are finite but suggests that the groups themselves may need further analysis in order to be thorough. Each of this 10groups can be subdivided. Only by auditing the current practice we can hope to improve it.

The advantage of this classification is that it can be used as an initial step to assess the reasons for CS rate thus enabling completion of audit cycle.[6]

The 10 group classification system is based on 4 main areas:

- The category of pregnancy.
- The previous obstetric history.
- The type of labour and delivery.
- As well as the gestational age.

Group 1: Primi with a single fetus in cephalic presentation, ≥37 wks. in spontaneous labor.
Group 2: Primi with a single fetus in cephalic presentation, ≥ 37 wks. with either labor induced or were delivered by CS.
Group 3: Multi, without a previous uterine scar, with a single fetus in cephalic presentation ≥37 weeks in spontaneous labor.
Group 4: Multi, without a previous uterine scar, with a single fetus in cephalic presentation ≥37 weeks with either labor induced or were delivered by CS.
Group 5: Multi with one previous uterine scar and a single fetus in cephalic presentation ≥37 wks. gestation.

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Group 6: Primi with a single fetus in breech presentation.

Group 7: Multi with a single fetus in breech presentation including women with previous uterine scars.

Group 8: All women with multiple pregnancies, including women with previous uterine scars

Group 9: All women with a single fetus in transverse or oblique lie, including women with previous uterine scars.

Group 10: All women with a single fetus in cephalic presentation ≤36wks gestation, including women with previous scars.

OBJECTIVE OF THE STUDY: To identify the groups of women contributing most to the CS rate.

MATERIALS AND METHODS: The data were collected from the cesarean section deliveries in Sree Uthradom Thirunal Academy of Medical Sciences of two years (Jan2010- Dec2011). This was analyzed according to the Robsons classification. There were 1199 child births of which 480 deliveries were by cesarean section i.e. 40.03%, of which 26.35% were primary cesarean and 13.68% were cesarean on uterus with previous scar. This percentage of primary cesarean deliveries will add up to the total cesarean rates in the next few coming years. The data is summarized in table 2.

ANALYSIS: Of the 204 (17.01%) primigravidas with spontaneous onset of labor only 20 (3.1%) were in need of cesarean deliveries, were as, of the 389 (32.44%) primigravidas who were induced 198(50.9%) were delivered by cesarean section i.e. more than fifty percentage of the induced primi mothers had cesarean delivery (table 3). Of the 212 (17.68%) multigravidas with spontaneous onset of labor only 6(2.83%) were in need of cesarean deliveries, were as, of the 185(15.43%) multigravidas who were induced 54 (29.2%) were delivered by cesarean section i.e. nearly thirty percentage of the induced multi gravid mothers had cesarean delivery.

This suggests that induction is one the major factors that is escalating our CS rates. In our hospital the pregnant women with breech presentation and with one or more previous cesarean were all delivered by cesarean as the women were not willing for assisted breech delivery and VBAC respectively when we explained them about the risks associated with it while counseling.

DISCUSSION: In this analysis groups 2, 4 and 5 are really driving our caesarean section rate. This shows that the women who are induced have a greater likelihood of having a caesarean section – therefore we must carefully consider the implementation of standard labor management strategies, appropriateness of induction of labour, and revise our induction of labour protocols/guidelines.

We must also do further work to encourage women who have had a previous caesarean section to consider vaginal birth in their next pregnancy. Our low risk/ normal women are a significant factor contributing to our high caesarean section rate.

CONCLUSION: The increase in CS rate is a global phenomenon but the rise has not contributed to an improved pregnancy outcome. The CS rate can be safely reduced by complex interventions that involve health workers in analysing and modifying their practice. Multifaceted strategies based on audit and detailed feedbacks are advised to improve clinical practice and effectively reduce the CS rate. Robson's classification of cesarean sections can be easily performed to provide the framework for evaluating cesarean section rates and their implications.

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The rise in rate of CS is not in isolation, a cause for concern, but may reflect changing reproductive patterns. The identification of barriers to change is a major key to success. So let us start auditing our cesarean deliveries and actively battle against the unhealthy trends of increasing cesarean section rates.

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STATES	PERCENTAGE OF WOMEN HAVING CESAREAN DELIVERY		
	*NFHS 1992-93	NFHS 1998-99	NFHS 2005-06
Andhra Pradesh	4.4	14.7	27.5
Assam	2.3	5.0	6.5
Bihar	1.1	3.0	4.1
Delhi	4.6	13.4	12.0
Goa	13.7	20.0	25.5
Gujarat	2.7	8.6	8.8
Karnataka	3.7	11.0	15.3
Kerala	13.2	29.8	30.1
Madhya Pradesh	0.7	3.0	6.8
Maharashtra	3.4	9.9	15.6
Orissa	1.5	5.2	6.1
Punjab	4.2	8.3	14.4
Tamil Nadu	7.1	17.5	23.0
Uttar Pradesh	0.6	2.7	5.9
West Bengal	3.3	13.5	15.0
INDIA	2.9	7.1	10.6
TABLE 1: CESAREAN SECTION RATES OF VARIOUS STATES IN INDIA			

*NFHS-National Family Health Survey

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JAN – DEC (2010 – 2011)	*SUTAMS		
Total deliveries	1199		
Total CS	480	480/1199	40.03%
Primary CS	316	316/1199	26.35%
Previous CS	164	164/1199	13.68%
TABLE 2: SUT ACADEMY OF MEDICAL SCIENCES, 2010-11 CESAREAN SECTION STATISTICS			

*Sree Uthradom Thirunal Academy of Medical Sciences

Robson Groups 1 – 10	Total Women in this group	No of CS	No of CS/ total women in that group	Contribution to overall CS rate
Group 1, Primi > 37 wks, spontaneous labour	204 (17.01%)	20	20/204 (3.1%)	20/480 (4.17%)
Group 2, Primi >37wks, induced or no labour	389 (32.44%)	198	198/389 (50.9%)	198/480 (41.25%)
Group 3, Multi >37wks, spontaneous labour	212 (17.68%)	6	6/212 (2.83%)	6/480 (1.25%)
Group 4, Multi >37wks induced or no labour	185 (15.43%)	54	54/185 (29.2%)	54/480 (11.25%)
Group 5, previous CS, 37wks	159 (13.26%)	159	159/159 (100%)	159/480 (33.13%)
Group 6, Primi, breech	14 (1.17%)	14	14/14 (100%)	14/480 (2.92%)
Group 7, Multi, breech	14 (1.17%)	14	14/14 (100%)	14/480 (2.92%)
Group 8, Multiple pregnancy	3 (0.25%)	2	2/3 (66.7%)	2/480 (0.42%)
Group 9, other presentations	5 (0.42%)	5	5/5 (100%)	5/480 (1.04%)
Group 10, < 37 weeks	14 (1.17%)	8	8/14 (57.14%)	8/480 (1.67%)
TOTAL	**1199**	**480**		
TABLE 3: CESAREAN DELIVERIES CLASSIFIED ACCORDING TO ROBSONS SYSTEM				

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