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Original Research Article

STUDY OF RATE, TRENDS AND DETERMINANTS OF CAESAREAN SECTION AMONG MOTHERS ATTENDING A TERTIARY CARE CENTER IN AHMEDABAD, GUJARAT, INDIA

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ABSTRACT

Background: Caesarean section is recommended when vaginal delivery might pose a risk to the mother or baby. C-sections are also carried out for personal and social reasons. Systematic reviews have found no strong evidence about the impact of caesareans for non-medical reasons.

Materials and methods: This Cohort study was conducted at gynecology department of B.J medical college and attached civil hospital , Ahmadabad, Gujarat,india from year 1993-1995 and it includes all cases admitted in Labor Room in the hospital.

Results: Total deliveries conducted during 2 year of period is 2500 and out of which 725 cases underwent for caesarean section for various indications. Prevalence rate of caesarean section was 29.0 %.Previous caesarean was the most common indication for caesarean delivery.

Conclusion: From Our study I would like to conclude that the prevalence of caesarean rate was higher in our study when compared to state and district caesarean rates.

Maternal age, Associated medical disorder and Nuliparity has significant effect on determining rate of caesarian section while Education and socioeconomic status has not significant effect on it. Utilization of ANC, better doctor patient communication, doctor's commitment to reduce the rate of CS, government's intention to develop better health care infrastructure and strict vigil on the private health institutions may help to reduce the high and increasing rate of caesarean delivery.

KEY WORDS: Robson's Classification, Caesarean section.

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BACKGROUND

A caesarean section is a surgical procedure to deliver a baby through a cut in the mother's abdomen (tummy) and uterus (womb). There are several medical reasons why you might plan for a caesarean, or your medical team might decide it's safest for you to have an emergency caesarean after labour begins. Caesarean section (CS or C-section) is a surgical intervention which is carried out to ensure safety of mother and child when vaginal delivery is not possible (emergency CS) or when the doctors consider that the danger to the mother and baby would be greater with a vaginal delivery (planned CS). Proportion of CS to the total births is considered as one of

the important indicators of emergency obstetric care (World Health Organization, 2009) In this context the rapid increase of CS rate throughout the world has become a serious public health issue because several studies have found that the high rate of caesarean section delivery does not necessarily contribute to an improved maternal health and pregnancy outcome [1,2].

In India the rural-urban difference between C-section rates is quite conspicuous. The rate of CS is higher in urban areas than their rural counterparts for all the states [3,4]. The rural-urban gap is relatively low in the states of Haryana, Delhi, Arunachal Pradesh and Kerala (below 5 percentage points). On the other hand, the gap is very high in the states of Jammu & Kashmir, West Bengal and Tripura (above 20 percentage points). The higher urban rates may be a reflection of combination of factors like higher availability and utilization of maternal health care services, larger concentration of private health institutions in the cities and towns etc. Moreover, the demographic and socio-economic backgrounds of the persons living in the rural and urban places affect the CS rate to a great extent [5].

Our study is an effort to find out the prevalence of caesarean section, identify its determinants in order to bring in a modus operandi for reduction in the rates.

METHODOLOGY

This cohort study was conducted at gynecology department of B.J medical college and attached civil hospital ,Ahmedabad, Gujarat,india from year 1993-1995 and it includes all cases admitted in Labor Room in the hospital. including booked, unbooked and referred cases. Data was collected by direct interviews using structured questionnaire, and from medical records.

RESULTS

Among total 2500 deliveries ,we divide it in to 2 type .one is vaginal and second is Caesarean section. after that percentage of vaginal and Caesarean section delivery is calculated based on various parameters like age, education status, socioeconomic status, parity, associated medical condition, indication of Caesarean section, timing of Caesarean section etc..

Table 1: Prevalence of Caesarean Section (n=2500).

Type of Delivery	Number of Cases	Percentage
Caesarean	725	29.00%
Vaginal	1775	71.00%

Among total 2500 deliveries ,1775(71%) deliveries occurred by vaginal route and 725(29%) deliveries occurred by caesarian section method.**(Table 1)**

Table 2: Prevalence of Primary Caesarean Section (n=725).

Type of Caesarean Section	Number of Cases	Percentage
Repeat caesarean section	296	40.82%
Primary caesarean section	429	59.17%

Total 725 C-section were done and among them 296(40.82%) had history of previous caesarian section and rest 429 (59.17%) were under gone first time for caesarian section.**(Table 2)**

Table 3: Percentage of Caesarean Section according to age.

Age in years	Vaginal delivery	Percentage	Caesarean delivery	Percentage	Total
<20	126	72.41%	48	27.58%	174
20-24	1143	78.66%	310	21.33%	1453
25-29	393	63.90%	222	36%	615
30-34	85	63.58%	110	56.41%	195
35-39	28	48.27%	30	51.72%	58
40-44	0	0%	5	100%	5
Total	1775		725		2500

It shows increasing trend for Caesarian section as maternal age increases. Chi square=40.8 P value<0.05, thus association between age and type of delivery found to be significant

Table 3 Showing age percentage of Caesarian section and it indicates that maximum C-section was done in age group of 30-34 year followed by age group of 35-39 year. So It indicates that as the age increases the rate of caesarian section also increases.

Table 4: Percentage of Caesarean Section according to educational status.

Education	Vaginal delivery	Percentage	Caesarean delivery	Percentage	Total
Illiterate	15	75%	5	25%	20
Primary school	307	78.92%	82	21%	389
High school	1302	68.52%	598	31.47%	1900
Graduation	151	79%	40	20.94%	191
postgraduate	0	0%	0	0%	0

Chi square=3.06, P>0.05, No relation between caesarean and educational status

The level of education as well as socioeconomic status was not associated with type of delivery, rate of caesarean section.**(Table 4 and 5)**

Table 5: Percentage of caesarean section according to socio economic status.

Socioeconomic status	Vaginal deliveries	Percentage	Cesarean deliveries	Percentage	Total
Upper class	7	100%	0	0%	7
Middle class	171	86.36%	27	14.13%	198
Lower class	1597	69.58%	698	30.41%	2295
Total	1775		725		2500

Chi square-0.501 P>0.05, No association of caesarean with socioeconomic status

Table 6: Percentage of caesarean section according to parity.

Parity	Total	Vaginal delivery	percentage	Caesarean delivery	Percentage
Multi para	850	698	82.11%	152	17.88%
Nuli para	1650	1077	75.57%	573	34.72%
	2500	1775		725	

Chi square 1.04 P>0.05, Association between caesarean and parity not significant

In the study emergency caesarean was more than elective caesarean, with mojority being nulliparous belonging to Robson's group 1 classification.**(Table 6 and 8)**

Table 7: Percentage of caesarean section according to associated medical complications.

	Vaginal	Percentage	Cesarean section	Percentage	Total
Heart disease	2	14.28%	12	85.71%	14
Hypertensive disorder of pregnancy	16	15.38%	88	84.61%	104
Anaemia	7	46.66%	8	53.33%	15
Thyroid disease	3	30%	7	70%	10
Eclampsia	2	9%	20	90.90%	22
Hepatitis	0	0%	0	0%	0
Diabetes	4	16%	21	84%	25
Seizure	3	100%	0	0%	3
HIV positive	2	100%	0	0%	2
Kyphoscoliosis	0	0%	0	0%	0
Pulmonary TB	0	0%	0	0%	0
Others	3	60%	2	40%	5
Total	42		158		200

The most common associated medical complication was hypertensive disorder of pregnancy, followed by diabetes and thyroid disorders. **(Table 7)**

Table 8: Distribution of caesarean according to type of caesarean section.

Type	Cases	Percentage
Emergency caesarean	674	92.96%
Elective caesarean	51	7%

Table 9: Distribution according to indication of caesarean section.

Indications	Number of cases	Percentage
Hypertensive disorder	15	2%
Placenta previa	16	2.20%
Previous caesarean	239	32.96%
Fetal distress	152	20.96%
Dysfunctional labour	51	7%
Cephalo pelvic disproportion	111	15.31%
Multiple pregnancy	14	1.93%
Abruption placenta	9	0.80%
Breech presentation	12	1.60%
Malposition	13	1.38%
Abnormal lie	5	0.68%
Contracted pelvis	5	0.68%
IUGR, oligohydramnios, abnormal doppler	40	5.51%
Bad obstetric history/treated for infertility	22	3.03%
Failed induction	21	2.89%
	725	100%

Table 10: Distribution according to day of delivery.

Day	Caesarean cases	Percentage
Week end	58	8%
Week days	667	92%
Total	725	100%

Table 11: Distribution by time of delivery.

Time	Caesarean cases	Percentage
Night time	247	34%
Day time	478	66%
	725	100%

Table 12: Distribution according to **ROBSON'S CLASSIFICATION.**

ROBSON'S GROUP	Caesarean rates	Percentage
Group 1	282	38.89%
Group 2	65	8.96%
Group 3	67	9.24%
Group 4	19	2.62%
Group 5	246	33.93%
Group 6	22	3.03%
Group 7	11	1.51%
Group 8	2	0.27%
Group 9	0	0%
Group10	11	1.51%

Caesarean section was not done at patients request. It is observed that group 1 contributes most to the caesarean rate, followed by group 5.**(Table 12)**

DISCUSSION

In India there is an increasing trend of c-section delivery with increase in the institutional deliveries and growing access to gynaecological and obstetric care.

Reliable data on the incidence of c-section is available in India only from the first round of NFHS conducted during 1992-93. Hence, the trend of c-section deliveries analyzed from 1992-93 to 2005-06 shows that there has been an upward trend in c-section rates in India [6].

At all India level, the rate has increased from 2.9 percent of the childbirth in 1992-93 to 7.1 in 1998-99 and further rose to 10.2 percent in 2005-06. The difference in c section delivery from NFHS-1 to NFHS-3 is relatively high in states like Andhra Pradesh, Goa, Kerala, Tamil Nadu, West Bengal and Punjab. A rapid increase in c-section rates has occurred in these states from 1992 to 2006. The rate is highest (27 percent) in the state of Andhra Pradesh in 2005-06 (although the rate was as low as 4.4 percent during 1992-93 in the state) [7].

As the study was conducted in tertiary care centre the caesarean rate was more when compared to state caesarean rate. A five year audit from a large teaching hospital in kolkata showed a caesarean section rate of 49.9%(Pahari,et.al.1997) [8] and another study in Madras showed caesarean section rate of 50% (sreevidya, 2003) [9].

In the study, primary caesarean rate was found to be 65.92% and most of them belonged to the group 1 which which included nulliparous term pregnant with spontaneous labour Study was concurrent with study of Emma.L.Barber where primary caesarean births accounted for 50% of increasing caesarean rate [10]. Among primary caesareans, more subjective indications (non reassuring fetal status and arrest of dilatation) contributed larger proportions than more objective indications (malpresentation, maternal-fetal and obstetric conditions) ACOG reco-mmends that caesarean section rate can be reduced by reducing primary caesarean sections.

The association of maternal age and type of delivery was found to be significant with caesarean rate increasing maternal age regardless of whether labour is spontaneous or induced, which was concurrent with study of Elker JL et al. [11].

The level of education was not associated with type of delivery, rate of caesarean section. In a study conducted in China by Xing Lin Feng et al[12] there was increase in caesarean section as the level of education and socioeconomic status increased. The same held good with socioeconomic status in our study.

It is important to note that In India government expenditure in health sector is extremely low. For example, in 2011, total health expenditure as % of GDP was only 4 for India and 18 for U.S.A. In the same year the general government expenditure on health as % of the total health expenditure for U.S.A., France, Germany, Brazil, Sri Lanka, China and India were 46, 77, 76, 46, 45, 56 and 31 respectively (WHO, 2013). To curtail the problems of over- medicalization of CS, government must spend more money to develop maternal and child health care infrastr-ucture. Seats for medical students in govern-ment colleges must be increased [13].

CONCLUSION

From Our study I would like to conclude that the prevalence of caesarean rate was higher(29%) in our study when compared to state and district caesarean rates.

Maternal age, Associated medical disorder and Nuliparity has significant effect on determining rate of ceasarian section while Education and socioeconomic status has not significant effect on it. Utilization of ANC, better doctorpatient communication, doctor's commitment to reduce the rate of CS, government's intention to develop better health care infrastructure and strict vigil on the private health institutions may help to reduce the high and increasing rate of caesarean delivery.

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