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Original Research Article

Rising rates of caesarean section: an indicator of defensive medicine practiced by obstetricians

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ABSTRACT

Background: Defensive medicine can be in the form of excessive tests, procedures, surgeries, or visits by the doctors to primarily reduce their exposure to legal liabilities. It also includes avoidance of high risk patients or procedures. Medical profession has been included under consumer protection act which has led in developing hostile environment for medical practitioners. This has led to increase in defensive medicine. In obstetrics and gynaecology incorporation of defensive medicine can be scrutinized by observing trends in caesarean section.

Methods: It is a retrospective study carried out for 1 year from January 2015 to December 2015. All patients in whom caesarean section was done were included in this study. Indications for which Caesarean section was done were studied and results were compared with similar studies in other hospitals.

Results: Overall rate of caesarean section observed in this study was 43.3%. Incidence of caesarean section in primigravidae was 59.5%. Only 2.1% of the patients underwent trial of scar resulting in vaginal birth. Foetal distress was one of the most common indicators for caesarean section and its detection was based on foetal cardiotocograph readings. Out of all patients taken for caesarean section due to foetal distress only 28.5% of the babies required neonatal intensive care admission. Rising trend towards caesarean section on maternal request was also seen.

Conclusions: Current climate of high professional liability is detrimental to good patient care as defensive medicine provides less benefit and much harm. Practice of medicine should be safe and hassle free. For this, standard protocols should be made and followed and if practitioners are abiding with standard protocols they should be protected against litigation.

Keywords: Caesarean section, Defensive medicine, Litigation, Obstetrics

INTRODUCTION

The passing of the Consumer Protection Act in 1986 has led to increased litigation against doctors. The medical profession is perturbed by this and a rethink is necessary as litigation is leading to 'defensive medicine'. Defensive medicine is defined as doctor's deviation from standard practice to reduce or prevent complaints or criticism.^{1,3} Defensive medicine may be positive or negative. The former includes performing unnecessary diagnostic tests and invasive procedure, prescribing unnecessary

treatment and needless hospitalization. The latter comprises avoiding risky procedures on patients who could have benefitted from them; thereby excluding patients from treatment and hospital admission.² This alteration in clinical behaviour occurs due to threat of malpractice liability.

In India, the second most common performed major procedure is caesarean section (CS). There has been an increasing trend in the CS rates in the last two decades not just in developed countries but also in developing

countries.⁴ This increase is seen more in primigravidae compared to multigravida which compromises their obstetric future in the form of vaginal delivery, as patients who have undergone caesarean section once are less likely to opt for vaginal birth after caesarean (VBAC) as clinicians and patients are not ready to take risk of scar rupture and high perinatal mortality.⁵ This results in exponential increase in CS.⁶ The reason for rise in CS in primigravidapatients is multifactorial. Availability of monitoring techniques such as cardiotocograph and foetal Doppler leads to the increase in rate of CS as they may give false positive alarms for foetal distress.⁷ Obstetricians order these tests to reduce the chances of missing early signs of foetal distress so that they are safe medico-legally.⁸ This is a form of defensive medicine.

Practice of defensive medicine has made health care more expensive. After implementation of consumer protection act, the amounts reimbursed for malpractice has increased and this has fuelled the practise of defensive medicine which in turn has resulted in higher health insurance premiums.⁹ This vicious circle results in non-availability of healthcare for persons in dire need as it gets non-affordable. This also increases the number of poor people going to quacks and jeopardizing their own lives. Thus, the very purpose of medical profession takes a back seat. Therefore, it is very important to reduce defensive medicine.

This can be done by standardizing treatment protocols and providing legal protection to the clinicians who practice in accordance to the protocols. Moreover, studies focusing on physicians' perceptions of legal risk and the underlying factors driving those perceptions can help in analysing factors responsible for defensive medicine so that fear can be removed from the minds of clinicians.¹⁰ This study was done to see changing trends in caesarean section so that factors responsible for the change could be analysed. This in turn will help in formulating solution for removing factors responsible for changing trends.

METHODS

It was a cross-Sectional retrospective study using secondary data. The records of all pregnant mothers who underwent lower segment caesarean section (CS) between January 2015 and December 2015 were studied.

This study was carried out at Department of Obstetrics and Gynaecology, Sapthagiri Institute of Medical Sciences and Research Centre (SIMS & RC): a tertiary care hospital.

Analysis was done in patients of reproductive age group i. e. of age between 19-45 years of age with gestational age between 28 weeks to 42 weeks. These patients were analysed with respect to primary or secondary CS, indications for CS, whether indications were recurrent, request for vaginal birth after caesarean section,

caesarean section on maternal request. These results were compared with similar studies to assess the reasons for rising trend for CS rates.

RESULTS

Table 1 shows rates of caesarean section in present study and other tertiary hospitals.^{11,12} From Table 1 it is seen that rate of caesarean section is very high. It is 43.35% in present study, 49% in the study done by Patil M et al, and 55% in the study done by Rafique and Raana.^{11,12}

Table 1: Comparison of rate of caesarean section in present study to other teaching hospitals.

	Present study	Rafique et al	Patil M et al
Study done in year	2015	2010	2011
Total number of deliveries	1054	1115	
Total number of caesarean sections	457	614	
Percentage of caesarean sections done	43.35%	55%	49%

Table 2 shows the percentage of primigravida and multigravida going for caesarean section in present study and compares it with the results obtained by Unnikrishnan B et al.¹³ It is observed that percentage of primigravida going for CS is more than that of multigravida. In present study 59.5% of primigravida underwent CS while rate of CS in multigravida was 40.5%. Similarly, in the study done by Unnikrishnan B et al rate of CS in primigravida was 47.8% and in multigravida it was 46.6%.¹³

Table 2: Percentage of primigravidae and multigravida going for caesarean section.

	Present study	Unnikrishnan B et al
Number of primigravidae patients going for caesarean section	272	839
Percentage of primigravidae patients going for caesarean section	59.5%	47.8%
Number of multigravida going for caesarean section	185	818
Percentage of multigravida going for caesarean section	40.95%	46.6%

Table 3 shows the common indications for which CS was done. In many patients there were multiple indications such as premature rupture of membranes (PROM) with intrauterine growth retardation (IUGR), or foetal distress with non-progress of labour. In these patients, primary

factor leading to CS was considered as indication for CS. In present study, it was observed that previous caesarean section and foetal distress were the two main indications

for CS. Previous Caesarean section accounted for 24.2% of cases going for caesarean section while foetal distress accounted for 28.44% of cases going for CS.

Table 3: Indications for which caesarean section was performed.

Indication	Present study	Rafique et al	Unnikrishnan B et al	Nahar K
Previous caesarean section	111 (24.2%)	56.3%	32.7%	16%
Foetal distress	130 (28.44%)	17.5%	19.6%	15%
Malpresentation	30 (6.56%)	3.2%		
Failure to progress	40 (8.75%)	14.3%		
Cephalopelvic disproportion	27(5.9%)	-		
Premature rupture of membranes >24 hrs	24 (5.25%)	-		
Antepartum haemorrhage	13 (2.84%)	3.83%		
Failure of induction	16 (3.5%)	-		
Intra uterine growth retardation	15 (3.28%)	-		
Twins	8 (1.75%)	1.3%		
CSMR	8 (1.75%)	-		
Contracted pelvis	1 (0.21%)	-		
PIH and eclampsia	16 (3.5%)	3.2%		
Other medical disorders	18 (3.93%)	-		

Similar findings were observed in study done by Rafique and Raana.¹² In their study previous caesarean section was indication in 56.3% of cases while foetal distress accounted for 17.5% of cases going for CS. In a study conducted by Unnikrishnan B et al previous caesarean section was indication in 32.7% and foetal distress was indication in 19.6% of cases.¹³ Nahar K also observed that previous caesarean section was indication in 16% of cases while foetal distress was indication in 15% of the cases.¹⁴ In present study, 37 newborns required neonatal observation out of 130 patients who were taken for CS due to fetal distress. That accounted for 28.57 % of the deliveries taken up for caesarean due to fetal distress.

Table 4 shows the indications for which caesarean section was carried out in patients of previous caesarean section. In present study it was seen that previous one or two caesarean section was the main indication for caesarean section in cases of previous caesarean section as these patients did not opt for VBAC/Trial of scar. These cases accounted for total 68.36% of the cases going caesarean section. Similar findings were observed by Rafique and Raana¹² where previous one caesarean section was indication in 39% of cases and previous two caesarean section was indication in 13% of the cases going for CS in patients of previous caesarean section. In present study, number of patients opting for Trial of Scar/VBAC was a mere 10 (2.1%).

There is now an emergence of new indication for CS i.e. CS on maternal request (CSMR). In present study, 1.5% of the patients going for CS had demanded caesarean section. Similarly, in study done by Unnikrishnan B et al 1.42% of the cases were of CSMR.¹³

Table 4: Indications for caesarean in patients of previous caesarean section.

Indication	Present study	Rafique et al
Previous 1 cesarean section*	72 (64.86%)	39%
Failure to progress	-	13%
Scar tenderness	11 (9.9%)	-
Previous 2 cesarean section*	4 (3.6%)	13%
Premature rupture of membranes	8 (7.2%)	5.2%
Cephalopelvic disproportion	-	2.9%
Twins	1 (0.9%)	-
Malpresentation	3 (2.7%)	1.3%
Abruption	1 (0.9%)	-
Intrauterine death	1 (0.9%)	-
Fetal distress	5 (4.5%)	10.45%
Oligohydramnios	2 (1.8%)	-
Polyhydramnios	1 (0.9%)	-
Pregnancy induced hypertension	1 (0.9%)	1.6%
Postdate	1 (0.9%)	4.5%

*These patients refused for 'vaginal birth after caesarean section/trial of scar'

DISCUSSION

It has been recommended by World Health Organization that the rate of CS should not exceed 15% but from table no 1 it is seen that rate in present study and other tertiary hospitals was much high i.e. ranging from 43.35% to

55%.¹⁵ The reason behind this might be that tertiary hospitals handle patients who had undergone trial of labor in primary or secondary health centers and then referred when there was failure of progress, foetal or maternal complication resulting in increased rate of CS. But, there is rising trend in rates of CS world-wide which has been supported by following studies.¹⁶ Study done by Unnikrishnan B et al there was rise in rate of CS from 20.35% in 2006 to 23.57% in 2009.¹³ Similar trend has been observed in United States where rate of CS rose from 23% in 1991 to 32% in 2007.¹⁷ Study done by Khwaja M indicates increase in rate of caesarean section from 4.6% in 1992 to 10.3% in 2000.¹⁸ According to study done by Litorp H et al rate of CS increased from 19% to 49% from period of 2000-2002 to 2009-2011.¹⁹ Study done by Aaron B also indicated that in 1988, the overall cesarean delivery rate was 25%, rising from less than 5% in the early 1970s. In the same study it was seen that cesarean delivery rate peaked at 25% in 1988 but then declined to 21% in 1996. From 1996 to 2004 again cesarean delivery rate increased from 29.2% to 31.1%.²⁰ Reason behind this might be that trial of scar was practiced previously but after incorporation of doctors in Consumer Protection Act due to fear of medical litigation, there was decrease in doctors giving trial of scar.

Table 2 shows that there was high rate of CS in primigravida patients i.e 59.5% in present study. Similar finding was observed by Unnikrishnan B et al where 47.8% of the patients going for CS were primigravidae.¹³ This trend was also observed in a study done by Roberts CL.²¹ Her study also indicated that in primigravida patients caesarean was mainly carried out in pre-labor period. The reason for this might be overuse of modalities detecting fetal distress which leads to aggressive management from clinician's side contributing to increase in CS.²² Moreover, upsurge in delaying of fertility by professional females and increased availability of infertility treatments have led to increase in number of elderly primigravidae with precious pregnancies requesting for CS during pre-labor period.²³

From Table 3 it is seen that previous caesarean section and fetal distress were the main indications for which caesarean sections were performed. Though foetal distress was one the main indications for caesarean section, in present study it was seen that out of all patients undergoing CS for fetal distress only 28.5% of the babies landed in neonatal intensive unit. This is because, gold standard method for detection of fetal distress is fetal scalp blood pH estimation but in present study detection of fetal distress was based on fetal cardiotocograph.²⁴ Fetal cardiotocograph overestimates fetal distress. Positive predictive value of fetal cardiotocograph is 54% while negative predictive value is 92%, indicating that normal trace assures of normal outcome but abnormal trace does not assure robustly about abnormal outcome.²⁵ This results in increased number of CS due to over diagnosis of fetal distress

which in turn increases the number of patients undergoing repeat CS leading to escalation of overall CS rate.

In present study, trial of scar was carried out in only 2.1% of cases even when it is a proven fact that VBAC is successful in around 80% of cases.²⁶ It has been seen that VBACs increased and peak levels were obtained in 1996 after which there was decline and now on average VBAC rate varies between 8-9%.²⁷ Reason for the decline might be avoidance behavior on part of obstetricians; because though a successful VBAC has less risk than that of repeat CS, but a failed VBAC carries more morbidity and mortality to the fetus and mother. Thus, due to fear of malpractice litigation, clinicians and hospitals might refuse to participate in VBACs.²⁸ This also results in exponential increase in CS rates.

Table 5: Rate of caesarean section on maternal request.

CSMR	Present study	Unnikrishnan B et al
Number	7/457	25/1756
Percentage	1.5%	1.42%

Table 5 shows percentage of women going for caesarean section on maternal request i.e. 'On Demand caesarean section'. This is seen more often in women from higher socio-economic and education group.²⁹ It is seen that fear of long-term sequelae, specifically stress incontinence and anal sphincter damage, fear of perineal damage from vaginal delivery, concern about the long-term effect of vaginal delivery on sexual function, fear of damage to the baby and the desire of an electively timed delivery might have resulted in increasing rate of CS in primigravidae patients in prelabour.³⁰

CONCLUSION

It was seen that in tertiary hospitals rate of caesarean section was high. It was also seen that in primigravida patients rate of caesarean section was more and it happened in pre-labor. It was also seen that trial of scar was low and there were patients undergoing 'On demand caesarean section'. This practise is developing due to noncompliance of patients to take risk and apprehension of clinicians to undertake risky procedures. Patients want zero risks for themselves and the baby which is not possible and clinicians due to fear of litigations avoid risky procedures such as 'Trial of Scar/VBAC' and have more bias towards caesarean section. But there is no benefit of such practise as it is seen that there has been no decrease in rate of perinatal asphyxia with increase in rate of caesarean section.¹⁵ On other hand, increase in caesarean section increases morbidity and mortality in patients as it leads to increase in placenta praevia, adherent placenta and post partum haemorrhage.³¹ Thus, the current climate of high professional liability is a detriment to good patient care. Defensive medicine provides less benefit and much harm to the patients. The

need of the hour is to create uniform guidelines of management for labour and practitioner should not be held responsible if their practices are in line of the guidelines laid. Doctors should be trained in terms of robust documentation so that they face less amount of medico-legal hassels. The consumer, in this case the patient, needs to be educated so that their expectations regarding outcome of any medical treatment should be realistic. These interventions will lead to decrease in defensive medicine and thus will have beneficial effect on the society.

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