
ORIGINAL ARTICLE**To Evaluate the Indications of Caesarean Section among the Population of Karnataka: A Prospective Cross-Sectional Study***Aruna Biradar¹, G.R Sajjan², Neelamma Patil^{2*}*

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Abstract:

Background: The incidence of Caesarean Section (CS) is increasing day by day among urban and rural population globally. Hence, a need of the study was required to find out the incidence of CS among population in a backward district of Karnataka. **Aim and Objectives:** To evaluate the rising trends in CS rate in both primigravida and multigravida. **Material and Methods:** This cross-sectional study was carried out among 513 patients (92.7% rural and 7.3% urban) admitted in labour ward at a tertiary referral centre, Vijayapura, Karnataka. The indications were analysed by standard procedures and the decision for CS were under taken by qualified professionals accordingly. **Results:** Total incidence of CS in the present study was 200(38.98%) out of 513 patients admitted. Out of 200 patients who underwent CS, were found to be primigravida 83 (41.5%) and were multigravida 117 (58.5%). The most common indication of CS in this study was found to be the Foetal Distress (FD) (35.5%) followed by Cephalo-pelvic Disproportion (CPD) (21%) and others (43.5%). Study also shows 90% of rural patients (n=180) and 10% of urban patients (n=20) had underwent CS (n=200). Interestingly it was noticed that age group of 21-30 years had maximum number of CS (74%). **Conclusion:** The results indicate the high incidence of CS among rural population of Vijayapura, Karnataka of which the common indication was FD, dystocia and failure to progress of labour. The increased incidence of CS is in primigravida and primary CS in multigravida in the perspective of various societal and medico-legal issues.

Keywords: Caesarean section, Maternal Age, Foetal Distress, Cephalo-pelvic Disproportion

Introduction:

In the nineteenth century, the method of caesarean delivery was well known in medical practice, yet rarely performed. Prior to the mid-nineteenth century, caesarean delivery was associated with an essentially 100% death rate for the mother [1]. At present, the incidence of Caesarean Section (CS) increased two to three folds and its needs are also more than the advice of WHO where it suggested to keep CS within 10-15% among delivery [2]. The study revealed that the CS rate >15% has no additional benefit reduction of the maternal and foetal mortality and morbidity. The factors responsible for this increase in the rate of both primary and CS are multifactorial [3]. Very few studies have been done to explore the rising trends of CS in India, particularly among the population of north interior of Karnataka. In view of increase in CS globally, including the third world countries like India the present study was undertaken to assess current trends in CS rate in both primigravida and multigravida among rural and urban population in a backward district of Karnataka, India.

Material and Methods:

This prospective cross sectional and observational study was conducted at Shri. B. M. Patil Medical College Hospital and Research Centre, Vijayapur, Karnataka, India from June 2010 to December 2012. Patients with previous two or more CS were excluded. Out of 513 patients admitted for delivery during the study period, 204 cases actually underwent CS but 4 cases were excluded from this study as they had undergone >2 previous CS.

A complete history including duration of amenorrhea, duration of labour pains and any other medical history were noted. If history of previous CS (< 2) was present then, the indication of CS, whether it was elective or emergency, and what was the foetal and maternal outcome of that caesarean or any post-operative complications were also noted. Menstrual, past, family and personal history were also noted. All patients were examined including general physical examination, systemic examination, per speculum and per vaginal examination to note the stage of labour, assessment of pelvis and cephalopelvic disproportion etc. Gestational age was assessed by the knowledge of last menstrual period, findings of initial prenatal examination and early pregnancy ultrasonographic examinations. The patients were monitored by professional physicians and the labour was augmented as and when required. Informed written consents were taken from all the patients who were included in the study. Statistical analysis was done using summary statistics of Mean \pm SD, chi square test, Freeman-Halter Fisher test. Data were

analysed by SPSS v.23.0 and Microsoft office 2007. Ethical Clearance was obtained from the Institutional Ethics Committee (No. BLDEU/66/09 dated 27/10/2009).

Results:

The present study showed 38.98% (200 out of 513) cases underwent primary and repeat CS. Of 200, primigravida were 83(39.90%) and multigravida was 117(58.5%). Out of 117 cases of multigravida, 66(56.4%) cases underwent primary CS and 51(43.5%) cases had repeat CS (43.5%) (Table 1). The present study also showed that out of 200 CS cases, 180(90%) women were residing in rural area. A majority of patients undergoing CS were in the age group of 21-30 years (Table 1). Among the 200 cases the commonest indication was found to be Foetal Distress (FD) 71(35.5%) and Cephalopelvic Disproportion (CPD) 42(21%). The rest 87 cases had other indications (Table 2). The method of diagnosis of FD (n=71). Out of 71 cases that underwent CS for FD, 25 cases were detected by Cardiotocography (CTG) and among these 15 were found to be primigravida and 10 were multigravida. Further out of 71 cases, 46 cases were clinically diagnosed with FD and among them, 34 were primigravida and 12 were found to be multigravida. A total of 15 out of 83 primigravida cases had antenatal complications. The complications were found to be severe pre-eclampsia with moderate anaemia, premature rupture of membranes, antepartum eclampsia, intrapartum eclampsia, rheumatic heart disease with mitral regurgitation, severe oligohydramnios.

Table 1: Parity, Age and Residential Area

Age (yrs)	Rural			Urban			Combined		
	Primi	Multi	Total	Primi	Multi	Total	Primi	Multi	Total
≤20	31	16	47	1	0	1	32	16	48
21-30	47	82	129	2	7	9	49	89	138
>30	1	3	4	1	9	10	2	12	14
Total	79	101	180	4	16	20	83(39.90%)	117(58.5%)	200(38.98%)

Table 2: Indications for CS

Indications	Number of cases	Percentage
Foetal Distress (FD)	71	35.5
Cephalo-pelvic disproportion (CDP)	42	21
Cord prolapse	2	1
Obstructed labour	6	3
Deep Transverse Arrest (DTA)	1	0.5
Antepartum Haemorrhage (APH)	4	2
Twins	1	0.5
Bad obstetric history with precious pregnancy	4	2
Compound presentation	2	1
Mal presentation	17	8.5
Severe foetal growth restriction with oligohydramnios	10	5
Scar tenderness	8	4
Pregnancy Induced Hypertension (PIH) [severe per eclampsia / eclampsia]	6	3
Failure to progress (CPD/ Secondary arrest of dilatation/ mal position)	26	13

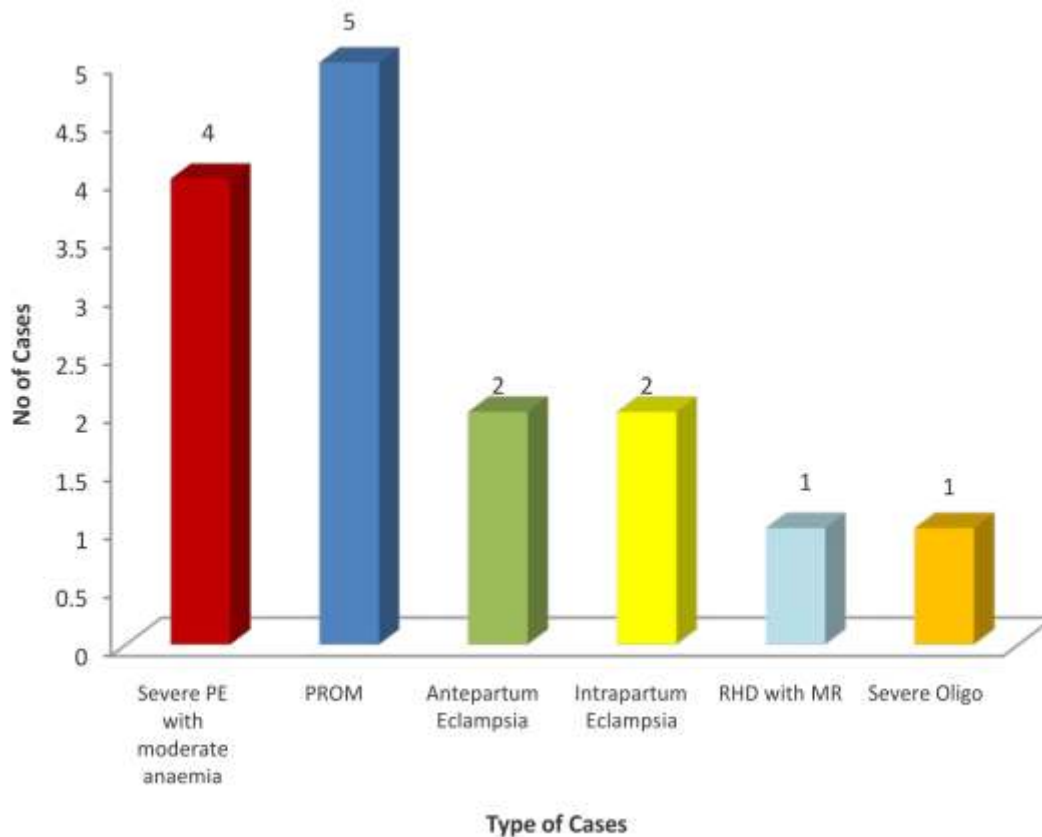


Fig. 1: Different Antenatal Complications in Patients who Underwent Primary CS, RHD, MR, Mitral Regurgitation, PROM, Premature Rupture of Membrane

Table 3: Number of Cases Undergoing Elective/Emergency CS

Distribution of cases	Primigravida	Multigravida	Total
Emergency	97	87	184
Elective	3	13	16

Table 4: Comparing Incidence of CS of Different Studies with Present Study

Other studies	Incidence
Chhabra et.al [5]	37.96%
Chaudhury et.al [6]	30%
WHO [7-9]	10-15%
Present study	38.98%

Discussion:

Out of 513 labour patients, 204 patients underwent CS of which 4 cases underwent >2 CS hence they were excluded. In our study, the primary and repeat CS showed an incidence of 38.98% (Table 1). In case of countries like Netherland and Sweden, which cater the best maternal and perinatal outcome, the CS rate is as low as 10-14% and 17% respectively [10]. The report from Bangladesh, another third world country showed the CS incidence of 57.8% which higher compared to that in the present study [11]. The study of Bangladesh further reported an incidence of CS in primigravida was alone as 74.34%. The trends of increase of overall CS rate may be due to increase in primary CS [12].

In this present study, higher percentage of CS among rural population against that in urban population does not corroborate with the study of Khan *et al.* [13] wherein he stated that due to high affordability, better education, small family norms, wealthy status etc may be the reasons for higher percentage of CS among urban population. The present study showed a high CS rate among rural population in spite of having good quality of life with more physical activity. Further, less affordability due to lower socio-economic status of rural population as compared to urban population may show lower CS rate among them. The present study also revealed equal (~50%) of CS among both primigravida and multigravida in the age group of 21-30 years. This rate is clearly higher as compared to a study done by Lin *et al.* which showed the rate as 27.4% in the same age group [14]. Our findings were with the near similar to the study done by Saha *et al.* (57.87%) [11]. Though there are very few studies showing the comparison of rates of CS in private

and government sector; studies showed a higher rate of CS in private sector compared to government [15].

Of the 200 CS cases in the present study, 71 (35.5%) underwent CS for FD which is one of the main indications of CS. This finding is comparable to a study conducted by Saha *et al.* (35%) [11]. Percent number of women with FD as an indication for CS in the present study was higher compared to similar study done by Ann *et al.* (19%) [6] and Qazi *et al.* (18.5%) [7].

Present study showed that cases had undergone CS for CPD. Distribution of these cases in the present study as primigravida (45%) and multigravida (55%) is comparable with similar study conducted by Onanpka *et al.* [17], Amin *et al.* [16] where the incidence of CPD was 39.8% and 41% respectively. The rate of CPD in the present study (21%) is comparable to study conducted by Chanthasenanont *et al.* (24.64%) [18] but as compared to a study conducted by Qazi *et al.* (42.8%) [7].

Other indications for CS in the present study were malposition (1.5%) which was less compared to a study conducted by Krychowsk *et al.* (12.45%) [19]. The incidence of CS for malpresentation in the present study was in 8.5% women which is comparable with the study done by Sheiner *et al.* (7.5%) [20] and is less compared to study conducted by Qazi *et al.* (32.1%) [7].

The incidence of cases had undergone CS for obstructed labour/ DTA in present study was 35%, which is more compared to study done by Mukherji *et al.* [21] and Onanpka *et al.* [16] where the incidences were 15.7% and 10.2% respectively (Table 2). In present study, out of 200 cases, 3 underwent CS for eclampsia (1.5%), which is less

compared to study done by Mukherji *et al.* [21] and Bukar *et al.* [22] where the incidences were 3.1% and 18.8% respectively (Fig.1). The incidence of CS for cervical dystocia in present study was 1.5%, which is comparable with a study conducted by Florica *et al.* (0.8%) [23]. The incidence of cervical dystocia is also found to be lesser as compared to studies conducted by Barber *et al.* (18%) [12], Sheiner *et al.* (6.1%) [20] and Saha *et al.* (12%) [11] respectively (Table-2). In present study, 2% of the cases underwent CS for Antepartum Haemorrhage (APH) which is comparable with the study conducted by Krychowska *et al.* with 1.38% [20] and which is found to be less as compared to the reports of Mukherji *et al.* (31.4%) [21], Bukar *et al.* (14.1%) [22] and Ann *et al.* (6%) [6] respectively. The Perinatal Mortality Rate (PMR) in the present study was 46.9% per 1000 live births

during the study period among 200 cases of CS studied [17]. There was no maternal mortality noted in the present study.

Conclusion:

The results indicate high rates of CS in both urban and rural population. The common indications were FD, dystocia because of CPD and failure to progress which are all subjective. The increased rate of CS in primigravida and primary CS in multigravida may be due to the changes in physician's attitude of practice in the perspective of various societal and medico-legal issues. Hence, more stringent measures may be adopted for judicious use of CS to reduce the rate of primary CS for the interest of well being of the women in both physiological and financial facets.

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