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Original Research Article

Analysis of caesarean section at tertiary centre in North Karnataka

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ABSTRACT

Background: There is increase in caesarean section (CS) rate worldwide. As per WHO CS are should be 10-15%. The present study is undertaken to know the incidence of CS at a tertiary centre and also to analyse the cases as per Robsons 10 group classification system.
Methods: A prospective observational study was conducted in department of obstetrics and gynaecology at GIMS Kalaburagi from January 2023 to December 2023. All pregnant women of gestational age 28 weeks or more admitted to labour room and delivered are taken into this study. Detailed history and clinical examination are done, labour details are recorded. Maternal and perinatal outcome is studied.
Results: Total deliveries in year 2023 were 8266, of which 4202 underwent CS incidence is 50.8%. Incidence of vaginal birth after CS (VBAC) is 1.1% group 5 followed by group 1 and group 10 were maximum contributors to overall CS 37.2%, 31% and 8.5% respectively. Perinatal mortality was 21.7/1000 birth.
Conclusions: The incidence of CS is very high in our study, because ours is a tertiary centre, cases are referred late, leading to increase in CS rate. CS has got more maternal morbidity when compared to vaginal delivery, therefore primary CS should be reduced by proper labour monitoring and early referral and CS should be done appropriately when indicated.

Keywords: Cesarean section, Robsons classification, Labour monitoring

INTRODUCTION

There is increase in CS rate worldwide in last few decades.[1] In 1985, WHO stated that CS should not exceed 10-15%.[2] In 2015, WHO proposed use of Robson classification also known as 10 group classification system as a global standard for assessing, monitoring and comparing CS rate.[3]

Robson system classifies all deliveries into 5 parameters-history (parity and previous caesarean section), onset of labour (spontaneous, induced, C-section before onset of labour), fetus presentation and lie (cephalic, breech or transverse), number of fetus, gestational age (preterm or term). This system can be used to analyse C-section trend in both high income and low-income countries. CS rate has doubled over 27 years as per Oliphant et al.[4] CS has 4 times more morbidity than vaginal delivery in spite of advancement in surgical procedure.[5] Though the maternal mortality with C section is 5.81-6.1/100000 procedure.[6] CS is life-saving procedure when needed, therefore it should be judiciously performed only when indicated.[7,8] Caesarean delivery has higher maternal risks compared with spontaneous vaginal birth.[9]

As much of data is not available for analysis of CS, especially in north Karnataka, this study in undertaken.

Aim and objectives

Aim and objective were to analyse caesarean section by using Robson's classification, to know the incidence of CS

at GIMS Kalaburagi, to know the most common cause of primary caesarean section, to know the incidence of VBAC and to study perinatal mortality rate.

METHODS

It is a prospective observational study conducted in department of obstetrics and gynaecology at GIMS Kalaburagi from January 2023 to December 2023.

All pregnant women of gestational age 28 weeks or more admitted to labour room and delivered are taken into this study. Detailed history i. e., age group, parity, number of fetus, previous C-Section, gestational age was taken. Clinical examination, labour details are recorded.

Maternal outcome i. e., mode of delivery (caesarean section, vaginal delivery, VBAC and perinatal outcome was studied.

Inclusion criteria

All pregnant women of gestational age more than 28 weeks admitted in labour room were included.

Exclusion criteria

Pregnant women of gestational age less than 28 weeks and pregnant women underwent laparotomy for rupture uterus were excluded.

Statistical analysis

Data is entered in excel sheet and descriptive analysis of data is done, data is tabulated in counts and percentage.

RESULTS

In the result, Table 1 is showing total deliveries in year 2023 were 8266, of which 4202 underwent CS incidence is 50.8%. The 3976 women had vaginal delivery; incidence is 48.1%. Incidence of VBAC is 1.1%

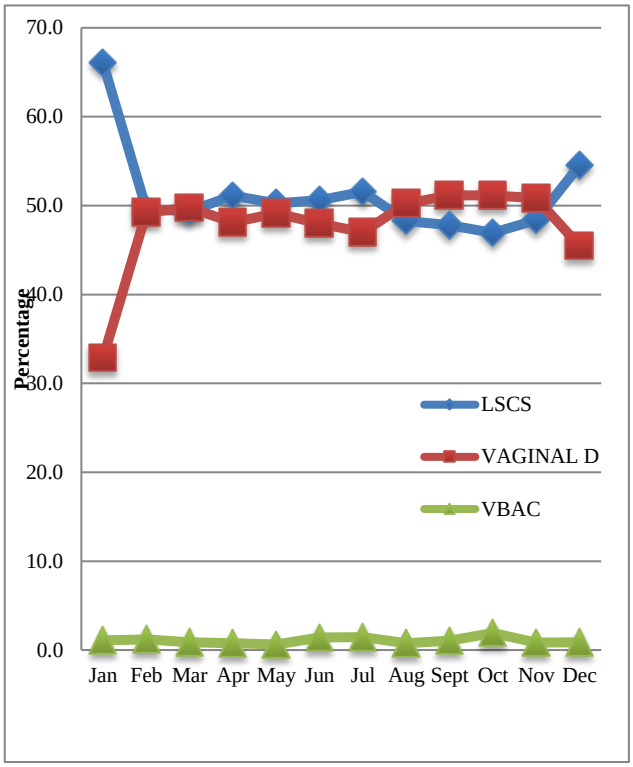

Figure 1: Demographic data showing month wise distribution of deliveries.

In this Figure, variations in deliveries are shown in month-wise.

Figure 1 represents the month wise (January to December) distribution of deliveries. Incidence of CS was highest in January 2023-66.

The 1% and least in October-46%. Incidence of vaginal delivery and VBAC was highest in October 2023-51.2% and 1.9% respectively.

Table 1: Distribution of deliveries in year 2023.

2023 years	Total delivery	LSCS		Vaginal D		VBAC	
		N	%	N	%	N	%
Jan	560	370	66.1	184	32.9	6	1.1
Feb	670	332	49.6	330	49.3	8	1.2
Mar	818	404	49.4	407	49.8	7	0.9
Apr	665	340	51.1	320	48.1	5	0.8
May	639	321	50.2	314	49.1	4	0.6
Jun	571	289	50.6	274	48.0	8	1.4
Jul	617	318	51.5	290	47.0	9	1.5
Aug	779	376	48.3	391	50.2	6	0.8
Sept	749	358	47.8	383	51.1	8	1.1
Oct	782	367	46.9	400	51.2	15	1.9
Nov	732	354	48.4	372	50.8	6	0.8
Dec	684	373	54.5	311	45.5	6	0.9
Total	8266	4202	50.8	3976	48.1	88	1.1

Table 2: Analysis of the CS cases as per Robsons classification.

Robson's 10 groups	Total deliveries	Relative size of Robson group (%)	No. of CS	Group specific CS (%)	Relative grp contribution to overall CS rate	Absolute group contribution to overall CS rate
1 (nulli single spont labour >37 weeks)	3027	29.8	1330	43.9	31.0	13.1
2a (nulli single >37 weeks induced)	589	5.8	57	9.7	1.3	0.6
2b (nulli single >37 weeks CS before lab)	13	0.1	11	84.6	0.3	0.1
3 (multi single >37 weeks spont lab)	2688	26.4	376	14.0	8.8	3.7
4a (multi single >37 weeks induced)	808	7.9	50	6.2	1.2	0.5
4b (multi single >37 weeks CS before lab)	149	1.5	103	69.1	2.4	1.0
5 (previous CS)	1685	16.6	1597	94.8	37.2	15.7
6 (nulli breech)	185	1.8	182	98.4	4.2	1.8
7 (multi breech)	102	1.0	95	93.1	2.2	0.9
8 (multiple pregnancy)	167	1.6	48	28.7	1.1	0.5
9 (abnormal lie)	85	0.8	83	97.6	1.9	0.8
10 (<36 weeks, previous CS)	667	6.6	363	54.4	8.5	3.6

In this Table, month-wise number of LSCS, vaginal and VBAC deliveries are shown in Table 1.

Table shows distribution of deliveries based on Robsons classification. Table 2 is showing the number of patients present in different classes of Robson's classification.

Table 3: Causes of primary CS.

Causes	N	Percentage (%)
Fetal distress	608	34.3
CPD	438	24.7
Malpresentation	364	20.5
Breech	282	15.9
Others (transverse, oblique, face, brow)	82	4.6

Table shows fetal distress as most common cause of primary caesarean section. Table 3 represents causes of primary caesarean section. Most common is cause is fetal distress (34.3%) followed by CPD (24.7%), malpresentation (20.5%). The incidence of breech is 15.9% and other malpresentation is 4.6%

Table 4: Day and night distribution of emergency CS.

Total CS	Day (8 AM-8 PM)	Night (8 PM-8 AM)
4065	1972 (48.5%)	2093 (51.5%)

Table 4 shows night time a greater number of emergency CS as compare to day. Table 4 is showing day and night distribution of emergency CS. Of total LSCS 4202, 4065 patients underwent emergency LSCS. Incidence of day and night LSCS was 48.5% and 51.5% respectively.

Table 5: LSCS distribution.

Total CS	Emergency CS	Elective CS
4202	4065 (96.7%)	137 (3.24%)

Table 5 shows a greater number of emergency CS as compare to elective CS. Table 5 represents LSCS distribution. OF 4202 LSCS, 96.7% underwent emergency CS and incidence of elective CS was 3.24%.

Table 6: Perinatal mortality or month.

Month	Perinatal mortality
January	13
February	19
March	25
April	11
May	16
June	15
July	15
August	14
September	10
October	14
November	12
December	15

Table shows more perinatal mortality in the month of March. Table 6 shows perinatal mortality/month perinatal

death was highest in month of march (25) and least in September (10). Overall perinatal mortality rate was 21.7 in our study.

DISCUSSSION

Caesarean section rate is increasing world-wide with time. CS was 50.8% in our study, similar to Akadri et al study in which cesarean rate was 51.2%, as compared to Kumar et al in which CS rate was only 28%.[11,12]

Robson system classifies all deliveries into 5 parameters. In our study group 5 (37.2%) followed by group 1 (31%) and group 10 (8.5%) are the major contributors to CS, which is similar to Pravina et al study in which group 5 (34.97%) was the major contributor to the overall CS rate, followed by group 2 (26.35%), group 1 (15.51%), and group 10 (7.14%).[13] In our study group 5 contributed to 37.2% to overall CS rate, which is similar to study, Pravina et al in which 34.9% was contributed by group 5. Group 5 (previous CS) followed by group 1 (nulliparous term spontaneous labour) and group 10 (<36 weeks preterm including CS) were maximum contributors to overall CS 37.2%, 31% and 8.5% respectively. Previous CS is the most common indication of CS worldwide.[10]

In Dhodapkar et al study, it was found to have group-1, group-5 and group-2 as the most prevalent groups accounting for 33.3%, 19.7% and 14.6% cases respectively as compared to our study, in which most of the patients belonged to group 1 (29.8%), followed by group 3 (26.4%) and group 5 (16%) respectively compared to Jain et al group 3 (29%), group 1 (23%) and group 5 (18%).[14,15]

CONCLUSION

Incidence of CS in our study is high because ours is a tertiary centre, patients are referred in late stage therefore leading to increase in number of emergency CS.

As discussed, and seen in our results, most of the cases belonged to group 5, so the incidence of primary C-section has to be reduced to avoid repeat C-Section.

Primary C-section rate can be reduced by proper monitoring of labour case by using partograph, assisted vaginal breech delivery can be conducted by skilled obstetrician when the criteria for breech trial are met, use of instrumental delivery like ventouse and forceps when indicated by skilled practitioner.

Therefore, Robson's classification should be implemented to analyse and avoid unnecessary CS.

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REFERENCES

1. Betran AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. The increasing trend in caesarean section rates: global, regional and national estimates: 1990-2014. PLoS One. 2016;11(2):e0148343.
2. World Health Organization Human Reproduction Programme. WHO Statement on caesarean section rates. Reprod Health Matters. 2015;23(45):149-50.
3. Robson MS. Can we reduce the caesarean section rate? Best Pract Res Clin Obstet Gynaecol. 2001;15(1):179-94.
4. Oliphant SS, Jones KA, Wang L, Bunker CH, Lowder JL. Trends over time with commonly performed obstetric and gynecologic inpatient procedures. Obstet Gynecol. 2010;116(4):926-31.
5. WHO recommendations for Induction of labour-2011. WHO reference no-WHO/RHR/11.10.
6. Lanneau GS, Muffley P, Magann EF. Chapter 74. Cesarean births: surgical techniques, In: Gynecology and Obstetrics. Lippincott. 2004;2.
7. Tura AK, Pijpers O, de Man M, Cleveringa M, Koopmans I, Gure T, et al. Analysis of caesarean sections using Robson 10-group classification system in a university hospital in eastern Ethiopia: a cross-sectional study. BMJ Open. 2018;8(4):e020520.
8. Adewuyi EO, Auta A, Khanal V, Tapshak SJ, Zhao Y. Cesarean delivery in Nigeria: prevalence and associated factors-a population-based cross-sectional study. BMJ Open. 2019;9:e027273.
9. Cunningham FG, Levono KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, et al. Caesarean Delivery and Peripartum Hysterectomy, Williams Obstetrics, 26e. McGraw Hill; 2022. Available at: https://obgyn.mhmedical.com/content.aspx?bookid=2977&sectionid=257580164. Accessed on February 6, 2025.
10. Jawa A, Garg S, Bora T. Evaluation of caesarean section rate using Robson's 10 group classification in a tertiary care centre. IOSR-JDMS. 2017;16(6 Ver. IX):85-9.
11. Kazmi T, Saiseema S, Khan S. Analysis of Cesarean Section Rate-According to Robson's 10-group Classification. Oman Med J. 2012;27(5):415-7.
12. Baser A, Sharma S, Kumar S, Sabu A, Gupta A, Shaikh SS. Indication for Cesarean Section as per Robsons's Criteria: An Analysis of 5000 Consecutive Cesarean Cases. J South Asian Feder Obst Gynae. 2021;13(1):22-5.
13. Pravina P, Ranjana R, Goel N. Cesarean Audit Using Robson Classification at a Tertiary Care Center in Bihar: A Retrospective Study. Cureus. 2022;14(3):e23133.
14. Dhodapkar SB, Bhairavi S, Daniel M, Chauhan NS, Chauhan RC. Analysis of caesarean sections according to Robson's ten group classification system at a tertiary care teaching hospital in South India. Int J Reprod Contracept Obstet Gynecol. 2015;4(3):745-9.

15. Jain R, Joshi V. Analysis of caesarean section using the Robson's ten group classification system-a way of monitoring obstetric practice. New Indian J OBGYN. 2022;9(1):71-7.
16. Akadri AA, Imaralu JO, Salami OF, Nwankpa CC, Adepoju AA. Robson classification of caesarean births: implications for reducing caesarean section rate in a private tertiary hospital in Nigeria. BMC Pregnancy Childbirth. 2023;23(1):243.

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