

Analysis of Cesarean Sections Carried out at Liaquat Memorial Hospital Kohat using Robsons Ten Group Classification

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ABSTRACT

Objective: To accomplish an analysis of cesarean sections carried out in Liaquat Memorial Hospital (LMH) Kohat and assess its rate using 10 Groups Robson classification system.

Study Design: Descriptive cross sectional study

Place and Duration of Study: This study was conducted at the Obstetrics/Gynae department of Liaquat Memorial Hospital (LMH) Kohat from the duration of January, 2019 to December, 2019 for a period of one year.

Materials and Methods: All patients attending the Obstetrics/Gynae department for delivery were enrolled in the study after taking verbal consent. A predesigned questionnaire including questions for data collection on maternal characteristics (i.e. age, gravidity, parity, previous history of c-section) pregnancy-related information (i.e. gestational age, fetal presentation, number of fetus and onset of labor) were used. The outcome of each patient either caesarian or normal delivery according to Robson's classification, cases of ruptured uterus, maternal mortality and still birth were also noted. Data was entered and analyzed using SPSS version 16.

Results: A total 2041 (19.83%) caesarian sections out of a total 10292 deliveries were carried out in the study center over this period. The highest caesarian sections (CS) 899 (44%), 243 (11.9%) and 201 (9.8%) were observed in Robson's classification R5 (multiparous women with at least one previous CS). The trend analysis of all cesarean cases showed that out of 2041 cesarean section cases, previous cesarean 670(32.83%), failure to progress 317 (15.53%) and fetal distress 210 (10.29%) were the predominant indications.

Conclusion: The rate of cesarean section (CS) was slightly higher in LHM hospital Kohat (19.89%) than the WHO recommended average cesarean rate of 15%.

Key Words: Robson classification, audit, cesarean section (CS), observational, labor, pregnancy, morbidity, fetal distress, induced labor

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INTRODUCTION

The escalating rate of cesarean sections across the globe during last few decades presented deep concerns to the health policy makers. The rate of cesarean section was just 5% in 1940 and increased up to 15% in 1970 and even beyond 30% in some areas¹. The World health organization (WHO) and US healthy initiatives 2000 guideline shows that

cesarean sections should not be greater than 15% of the total births². Cesarean section is an important component of the emergency obstetric care and performed mostly to save the lives of mother and fetus only when they are required for medically indicated reasons.³ Cesarean section (CS) rates have increased to unprecedented level worldwide without enough evidence indicating substantial maternal and perinatal benefits. It has been reported that rates higher than 9–16% are not associated with decreases in maternal and neonatal mortality^{4,5}. There is growing concern over the higher incidence of long-term complications following one or more CS such as placenta accreta, retained placenta, and uterine rupture with possible need for peripartum hysterectomy⁶⁻⁸. It can also cause significant and sometimes permanent complications, disability or death particularly in settings that lack the facilities and capacity to properly conduct safe surgery and treat surgical complications. Every effort should be made to provide caesarean sections to women in need, rather than striving to achieve specific rates. At the heart of the challenges in defining the optimal caesarean section rate there is also lack of a reliable and

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internationally accepted classification system to produce standardized data. Among the existing systems used to classify caesarean sections, the 10-group classification (also known as the ‘Robson classification’) has become widely used in many countries. The WHO, in its statement of April 10, 2015, proposed that the Robson classification of C-sections be used as a global standard to assess, monitor and compare cesarean rates over time at the same hospital or among different hospitals in the same region or country ¹¹.

MATERIALS AND METHODS

A formal approval for the study was taken from institutional ethical review board (IERB). All patients attending the Obstetrics/Gynae department for delivery were enrolled in the study after taking verbal consent. A predesigned questionnaire regarding clinical history of patients were filled and post-delivery outcome either caesarian or normal delivery of each patient was noted^{10, 11}. The women were categorized into 10 groups based on their basic obstetric characteristics parity, gestational age, and number of fetuses, fetal presentation, previous cesarean and mode of onset of labor. Data was entered and analyzed using SPSS version 16. Descriptive statistical analysis using frequency and proportion were used in the study.

RESULTS

The total number of women who delivered in two obstetric units of LMH was 10292. Around 2041 C-Sections were carried out with an overall C Section rate of 19.83% for the specific time period .The analysis of our data showed that the most representative group in our population was Robson's Group 3 at 58.86% followed by Group 1 (20.85%) and Group 5 (9.40%). Groups 9 and 10 were minimal in our statistical data at 0.51% and 1.43% respectively (Table 1). Highest contribution to the total section rates was by Group 5(44.05%) followed by Group 1(11.9%) and G3 at 9.85%. These three groups utterly contributed to 65% of the total Cesareans Then came group 4 and 10. When all five groups were summed up they contributed to 78% of the C section rate. The least contribution was by Group 9 (Table 1). Primary CS rate contributed to 33.96% to the overall C section rate which is done in (Groups 1, 2, 3, 4), while in other studies primary CS rate approached 50%. The CS rate in Robson group 1 (nulliparous women with singleton pregnancy in spontaneous labour was 11.32%, which is slightly higher than Robson’s recommended guidelines of rate under 10%. The CS rate in group 2 (nulliparous women with singleton pregnancy, who had induced labour or pre-labour CS) was 55.98 %, much higher than Robson’s guideline (CS rate between 20 and 35).

While assessing indications of CS in Robson group 1(primi with spontaneous labour) and Robson group 2 (primi with induced labour), 35%, and 7 % CS were performed due to failed progress of labor and 24% and 12 % following non-reassuring cardiotocogram (CTG) in two groups respectively. Noticeably this proportion of relative indications of C section can be lowered by appropriate use of partogram, implementation of new WHO recommended labour guide, ample use of oxytocin and reducing the interobserver difference in interpretation of CTG by arranging teaching workshops for the obstetric staff. The CS rate in Robsons group 3 (multiparous women without previous CS, with singleton pregnancy in spontaneous labour) had a CS rate of 3.32% which is within the range of Robsons recommendation (3%–5%) while the CS rate in Robsons group 4 (multiparous women without a previous CS, with singleton pregnancy, who had induced labour or pre-labour CS) was 50% much higher than the Robsons recommendation of 15%. The main indications of C-section in Robsons group3 were failure to progress (34%), fetal distress (19%) and obstructed labour (16%) while in Robsons group 4 about 23% of CS were done due to antepartum hemorrhage, 16% fetal distress , 6% obstructed labour, 3% failure to progress. The CS rate in group 5 (multiparous women with at least one previous CS) in our study was 92.97%, which is higher than the Robson recommendation (50%–60%). In our study, only few women were offered TOLAC (trial of labour after C-section) because there is shortage of staff on floor one to one monitoring was not possible.

Table No.1: Robson 10 group of classification system

Group	Description
R1	Nulliparous, single, cephalic, >37wks in spontaneous labour
R2	Nulliparous, single, cephalic, induced or CS before labour
R3	Multiparous (excluding previous CS), single cephalic >37wks in spontaneous labour
R4	Multiparous (excluding previous CS), single cephalic >37wks induced or CS before labour
R5	Previous CS, single cephalic >37 weeks
R6	All nulliparous breeches
R7	All multiparous breeches (including previous CS)
R8	All Multiple pregnancies (including previous CS)
R9	All abnormal lies (including previous CS)
R10	All preterm < = 36 weeks(including previous CS)

Table No.2: Frequency of total deliveries, Cesarean section rate and contribution made by each group of Robson Classification

Robson classification	A Total deliveries in a year (n)	B Total Cesarean sections in a year (n)	C Total vaginal deliveries	D Rate of c-sections in each group (B/A) x 100 %	E Relative size in each group (A/Total obstetrical population)×100%	F Contribution of each group to overall CS rate (B/Total obstetrical population)×100%
Group 1 Nulliparous, single, cephalic,>37wks in spontaneous labour						
	2146	243	1903	11.32	20.85	11.91
Group 2 Nulliparous, single, cephalic, induced or CS before labour						
	184	103	81	55.98	1.79	5.05
Group 3 Multiparous (excluding previous CS),single cephalic >37wks in spontaneous labour						
	6058	201	5857	3.32	58.86	9.85
Group 4 Multiparous (excluding previous CS), single cephalic >37wks induced or CS before labour						
	292	146	146	50.00	2.84	7.15
Group 5 Previous CS, single cephalic >37 wks						
	967	899	68	92.97	9.40	44.05
Group 6 All nulliparous breeches						
	112	81	31	72.32	1.09	3.97
Group 7 All multiparous breeches (including previous CS)						
	155	122	33	78.71	1.51	5.98
Group 8 All Multiple pregnancies (including previous CS)						
	177	62	115	35.03	1.72	3.04
Group 9 All abnormal lies (including previous CS)						
	52	52	0	100.00	0.51	2.55
Group 10 All preterm <= 36 weeks(including previous CS)						
	147	132	15	89.80	1.43	6.47
Total	10292	2041	8251	19.83	100.00	100.00

Table No.3: Frequency of serious outcomes during deliveries in a year

No	Month	PNM/Still Birth		premenstrual dysphoric disorder (MD)		Raptured Uterus	
		n	%	n	%	n	%
1.	January	25	10.72	0	0.00	1	
2.	February	0	0.00	0	0.00	1	3.13
3.	March	0	0.00	0	0.00	2	6.25
4.	April	29	12.46	1	33.33	4	12.5
5.	May	44	18.88	0	0.00	1	3.13
6.	June	10	4.29	0	0.00	1	3.13
7.	July	20	8.58	0	0.00	1	3.13
8.	August	33	14.16	0	0.00	0	0.00
9.	September	24	10.30	1	33.33	0	0.00
10	October	18	7.73	0	0.00	9	28.13
11	November	0	0.00	0	0.00	3	9.38
12	December	30	12.88	1	33.33	9	28.13
Total		233	100.00	3	100.00	32	100.00

Table No.4: Frequency distribution of cesarean sections (CS) on the basis of clinical presentation

Clinical presentation	R1		R2		R3		R4		R5		R6		R7		R8		R9		R10		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Obstructed labour	50	20.58	3	2.91	34	16.92	9	6.16	27	3	7	8.64	9	7.38	7	11.29	1	1.92	1	0.76	148	7.25
Failure to progress	86	35.39	7	6.8	69	34.33	5	3.42	84	9.34	20	24.69	30	24.59	4	6.45	0	0	12	9.09	317	15.53
Fetal distress	60	24.69	13	12.62	40	19.9	24	16.44	36	4	7	8.64	6	4.92	8	12.9	0	0	16	12.12	210	10.29
Pre eclampsia	3	1.23	9	8.74	4	1.99	10	6.85	20	2.22	0	0	3	2.46	2	3.23	0	0	5	3.79	56	2.74
Previos cesarean	0	0	0	0	0	0	0	0	597	66.41	2	2.47	16	13.11	10	16.13	1	1.92	44	33.33	670	32.83
Prom	12	4.94	2	1.94	8	3.98	9	6.16	14	1.56	4	4.94	11	9.02	3	4.84	2	3.85	6	4.55	71	3.48
Breach	1	0.41	0	0	0	0	3	2.05	2	0.22	34	41.98	27	22.13	10	16.13	3	5.77	2	1.52	82	4.02
Failed induction	6	2.47	15	14.56	4	1.99	13	8.9	4	0.44	0	0	1	0.82	0	0	2	3.85	3	2.27	48	2.35
Antepartum haemorrhage	3	1.23	4	3.88	17	8.46	35	23.97	6	0.67	1	1.23	3	2.46	1	1.61	0	0	26	19.7	96	4.70

strategies to reduce their section rates till they reach the proposed WHO recommendations.

Author's Contribution:

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REFERENCES

- Kant A and Mendiratta S. Classification of cesarean section through Robson criteria: an emerging concept to audit the increasing cesarean section rate. *Int J Reprod Contracept Obstet Gynaecol* 2018;7:4674-77.
- Yaya S, Uthman OA, Amouzou A, Bishwajit G. Disparities in caesarean section prevalence and determinants across sub-Saharan Africa countries. *Global Health Res Policy* 2018; 3: 19.
- Bailey P, Lobis S, Maine D, Fortney JA. Monitoring emergency obstetric care: a handbook. World Health Organization, 2009.
- Liu S, Liston RM, Joseph K, Heaman M, Sauve R, Kramer MS. Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term. *CMAJ* 2007;176: 455-60.
- Joseph K, Young DC, Dodds L, et al. Changes in maternal characteristics and obstetric practice and recent increases in primary cesarean delivery. *Obstet Gynecol* 2003;102:791-800.
- Connection C. Cesarean section best evidence: C-section (last updated 2009). Accessed July 2012;26.
- Hamilton BE, Martin JA, Ventura SJ. Births: Preliminary data for 2008. National vital statistics reports 2010;59:1-19.
- Robson MS. Can we reduce the caesarean section rate? *Best Practice Research Clinical Obstetrics Gynaecol* 2001;15:179-94.
- Torloni MR, Betran AP, Souza JP, et al. Classifications for cesarean section: a systematic review. *PloS one* 2011;6: e14566.
- Betran AP, Vindevoghel N, Souza JP, Gülmezoglu AM and Torloni MR. A systematic review of the Robson classification for caesarean section: what works, doesn't work and how to improve it. *PloS One* 2014;9:e97769.
- WHO. Robson Classification: Implementation Manual 2017.
- WHO. WHO Statement on Caesarean Section Rates 2015.
- Lisonkova S, Sheps SB, Janssen PA, Lee SK, Dahlgren L, MacNab YC. Birth outcomes among older mothers in rural versus urban areas: a residence-based approach. *J Rural Health* 2011; 27: 211-9.
- Gilani S, Mazhar SB, Zafar M, Mazhar T. The modified Robson criteria for Caesarean Section audit at Mother and Child Health Center Pakistan Institute of Medical Sciences Islamabad. *JPMA J Pak Med Association* 2020;70: 299-303.
- Kazmi T, Sarva Saiseema V, Khan S. Analysis of Cesarean section rate-according to Robson's 10-group classification. *Oman Med J* 2012; 27: 415.
- Hehir MP, Ananth CV, Siddiq Z, Flood K, Friedman AM, D'Alton ME. Cesarean delivery in the United States 2005 through 2014: a population-based analysis using the Robson 10-Group Classification System. *Am J Obstet Gynecol* 2018; 219: 105. e1-. e11.
- McDonagh MS, Osterweil P, Guise JM. The benefits and risks of inducing labour in patients with prior caesarean delivery: a systematic review. *BJOG: An Int J Obstet Gynaecol* 2005;112: 1007-15.
- Mylonas I, Friese K. Indications for and risks of elective cesarean section. *Deutsches Ärzteblatt Int* 2015;112:489.