ORIGINAL ARTICLE

A comparative analysis of indications of primary cesarean section in multigravida and primigravida

Shazia Aftab, Samina Ayaz, Erum Khalid, Tahmeena Ali, Fariha Hussain, Komal

Abstract

Background: The number of caesarean sections (CS) has been on the rise over the last decade. caesarean section are potentially life-saving, a medically necessary caesarean section can prevent maternal and infant mortality. The adverse maternal and perinatal outcomes when a caesarean section is not medically necessary have become a major public health concern as the associated expenses decrease resources available for other maternal and child health interventions.

Aim and objective: The aim of study is to compare the incidence and indications of primary caesarean section in multigravida and primigravida.

Material and Methods: This is a prospective comparative study of primary caesarean section in multigravida and primigravida in duration of one year between January 1, 2018 and December 2018 at Jinnah Medical College Hospital, Karachi. All the deliveries were included i.e. vaginal and cessarean sections and were divided into two groups i.e. primigravida and multigravida and patients who had undergone primary cesarean section were taken as cases. Patients who had repeat caesarean section were excluded from the study. Statistical analysis was conducted using SPSS version 23.

Results: During the one year study period, total deliveries were (1032) out of which vaginal deliveries were (639) i.e. 61.91% and total cessarean section were (393) with rate of 38.08. Women who had cessarean section for the first time (primary cessarean section) constituted 26.06% of total. From the total primary cessarean sections more than ⅔ were primigravidas i.e. 62.8% and multipara were 37.17%.

Conclusion: The study presents the higher incidence of primary caesarean section in primigravidas. Failure to progress of labour and foetal distress were leading causes in both groups, adequate uterine contractions during active phase and intensive foetal monitoring may reduce the caesarean section rate.

Keywords: primary cessarean section, primigravida, multigravida, indications of cessarean section.

Received
Date: 7th November, 2019
Accepted
Date: 4th May, 2020

Jinnah Medical College, Hospital, Karachi
S Aftab
S Ayaz
F Hussain
Komal

Hamdard University Hospital, Karachi
E Khalid

Dow University of Health Sciences (DUHS), Civil Hospital, Karachi
T Ali

Correspondence:
Dr. Shazia Aftab
Associate Professor, Obs/Gyn, Jinnah Medical College Hospital, Karachi
Address: Block A-14/1, Navy Heights, NORE III, Karachi.
Cell No: +92 333-2122748
email: drshaziaaftab@gmail.com

Introduction:

The number of caesarean sections (CS) has been on the rise over the last decade. caesarean section are potentially life-saving, a medically necessary caesarean section can prevent maternal and infant mortality; however, there is no evidence that caesarean section benefits women who do not require the procedure.[1] The adverse maternal and perinatal outcomes when a caesarean section is not medically necessary have become a major public health concern as the associated expenses decrease resources available for other maternal and child health interventions.[2] According to the World Health Organization (WHO), caesarean section rates approach 10%.[1]

Today There has been a remarkable increase in the rate of caesarean section in both developed and developing countries, it accounts for 15– 25% in developed countries, with maternal

mortality of less than 1:10,000.[3] Pakistan is a developing country and the caesarean sections rate is reported as high as 67.7% and 45.1% in the year 2007.[4,5] The rate of caesarean section is debatable. Even the relative benefits of higher or lower rates are also debatable.[6]

Multipara means those who had delivered once or more after the age of viability. Primary caesarean section in the multipara means first caesarean section done in the patients who had delivered vaginally once or more.[7]

As multiparous women passes successfully through normal deliveries, resulting in the neglecting of routine antenatal checkups and there is an attitude of satisfaction of doctors also for these patients for subsequent childbirths but they may still require a caesarean section for safe delivery.[8]

Though due to modified and advanced surgical techniques, caesarean sections has become safer, but it is still not as safe as normal vaginal delivery. It is therefore felt need to study the indications, maternal and fetal outcome among women who have delivered with cesarean section.

The aim of study is to compare the incidence and indications of primary caesarean section in multigravida and primigravida and to determine the prevalence of obstetrics complications and maternal and perinatal morbidity and mortality so that the aspects which need due attention in either group could be differentiated and better obstetric management could be given to them.

Material and Methods:
This is a prospective comparative study of primary caesarean section in multigravida and primigravida in duration of one year between January 1, 2018 and December 2018 at Jinnah Medical College Hospital, Karachi. All the deliveries were included i.e. vaginal and cessarean sections and were divided into two groups i.e. primigravida and multigravida and patients who had undergone primary cesarean section were taken as cases after obtaining verbal consent from the patients.

Multiparous patients means those who had delivered vaginally once or more (i.e. 28 weeks of gestation or above) or given birth to 1–4 children and grand-multiparous (given birth to 5+ children). All deliveries were hospital based the decision to undertake caesarean sections was made by a specialist in every case. The procedure was performed by registrars and specialists. All the patients taken up for study were followed up till they were discharged from the ward. The information was documented by the attending doctor. The data included demographic data; age, parity, gravidity, maternal medical history; specific information on maternal or fetal pregnancy-related complications; booked and unbooked status, mode of delivery, gestational age (measured according to the last menstrual period), (and it was confirmed by an ultrasound examination within 20-weeks of gestation or by the first trimester ultrasound measurement of the crown-rump length of the fetus), all primary indications for cesarean sections, the newborn's sex, birth weight and apgar score; and the maternal and perinatal outcomes and the need for ICU admission. All adverse maternal and fetal outcomes were recorded. The data was collected using questionnaire and by review of hospital records which contains data of each and every delivery conducted in hospital was used to find out total number of deliveries and cesarean section during the study period.

Exclusion criteria: Patients with non viable pregnancy or ectopic pregnancy and who had repeat caesarean section were excluded from study.

The study was approved by the hospital's research and ethics committee.

Statistical analysis was conducted using SPSS version 23. Percentages and frequencies were calculated and results were compared between groups, chi square test applied and P value < 0.01 considered as significant.

Results:
During the one year study period, total deliveries were (1032) out of which vaginal deliveries were (639) i.e. 61.91 % and total cessarean sec-

Table 1: *Incidence of primary caesarean section*

	Frequency	Percent
Total no of primary cesarean sections	538	26.06
Primary cesarean section in primiparous	338	62.8
Primary cesarean section in multiparous	200	37.17
Primary emergency cesarean section	456	84.75
Primary elective cesarean section	82	15.24
Primary emergency cesarean section in multiparous	170	85
Primary elective cesarean section in multiparous	30	15
Primary emergency cesarean section in primiparous	286	84.6
Primary elective cesarean section in primiparous	52	15.3

Table 2: *Parity and indications cross tabulation*

		NPOL	IUGR	Failed induction	Chorio-amnionitis	Breech	Other abnormal lie	BOH	FD	CPD	APH	PIH	GDM	Maternal request	Total
parity	primigravida	73	5	13	1	5	1	0	37	6	5	12	5	6	169
	para 1	1	2	1	0	1	0	2	5	2	0	1	0	0	15
	para 2	7	3	1	0	2	0	0	3	0	3	1	0	0	20
	para 3	3	4	1	1	1	1	0	11	0	5	3	1	1	32
	para 4	1	2	1	0	1	1	0	3	1	1	6	5	0	22
	para 5	0	2	0	0	1	0	0	2	0	1	3	2	0	11
		85	18	17	2	11	3	2	61	9	15	26	13	7	269

Table 3: *Parity and post-operative complications cross tabulation*

			Blood transfusion	Wound infection	Obstetrical hyst	NICU admission	Baby hypoglycemia	Total
Parity	primigravida	157	4	2	0	1	5	169
	para 1	13	1	0	0	1	0	15
	para 2	20	0	0	0	0	0	20
	para 3	28	1	2	0	0	1	32
	para 4	17	0	0	1	1	3	22
	para 5	4	0	2	1	1	3	11
		239	6	6	2	4	12	269

tion were (393) with rate of 38.08. Women who had cessarean section for the first time (primary cessarean section) constituted 26.06% of total deliveries and 68.44% of total cessarean section (269/393). From the total primary cessarean section more than two third were primigravidas (169) with the rate of 62.8% (43% of total cessarean sections), multipara were (100) with rate of 37.17% (25.44% of total cessarean sections) and 9.6% of total deliveries. Overall incidence of primary emergency and elective cessarean section in both groups is shown in table no.1.

The mean age of women was 29.5 years with range from 15 to 45 years. In primigravidas the 35.5% of patients present with 21-25 years of age, 29.5% pts present with 15-20 years and 20.11% patients were with 26-30 years of age. In multiparous patients 39% of patients present with 26-30 years of age, 41% were in 31-35 years and 10% were more than 35 years. Among (100) multiparous patients which undergoing cessarean section, 87% presents with gravidity 2,3 and 4 in which para three were in maximum number i.e. 32%, para-4 22% and para-2 were 20% while grand multiparity (5+ births) prevalent in 13% of all women.

Both primiparous and multiparous women have more likely to have an emergency cessarean sections compared to elective i.e. 84.6% vs 15.3% for primigravida and 85% vs 15% for multigravida.

The total booked cases were 189 (70.3%) and unbooked were 80 (29.7%). Booked primigravidas were 44.2% (119), booked multigravidas were 26% (70) and unbooked primigravidas were 18.5% (50) and unbooked multigravidas were 11.15% (30).

The overall indications of cesarean sections are shown in table no. 2, in which non progress of labour ranked first 31.5% in which 27% (73) constitute in primigravidas and 4.4% /(12) in multis followed by fetal distress 22.6% in which 13.7% (37) constitute in primigravidas and 8.9% (24) constitute in multigravidas etc.

The overall post-operative morbidity is shown in table no. 3 which was observed in 11.1% patients. The number of patients who had blood transfusions were six (in which primi were four), patients with prolong hospital stay were six due to (wound infection, obstructed labour, blood pressure and sugar monitoring) from which only two primigravidas admitted for wound infection, two patients had obstetrical hysterectomy and both were multis and sixteen babies were admitted in NICU due to fetal distress, neonatal jaundice, hypoglycemia, growth restriction and neonatal sepsis from which 6-babies of primi-

gravidas need NICU admission.

Discussion:

Primary caesarean sections is an important determinant of future obstetric course of any woman and it should be avoided whenever possible, unless there is a solid indication. Thus, it's a debatable subject. In the study the primary cesarean section rate is 26.06% which is comparable to other studies conducted by Desai et al,[9] and lower than a record level of 62.2% in Iraq[10] and other parts of Pakistan range 45.1% to 67.7%[11,12] which is much higher than the 15% recommended by World Health Organisation.[1]

The higher incidence of primary caesarean section was found in primigravidas with the rate of 62.8% which is also seen in other studies where primary caesarean section rate ranged 50.9% for primiparous teenage women.[13] The overall rate of caesarean section can be reduced significantly if first stage of labor of a woman is well managed. The conventional obstetric belief that the first delivery is 'the true test of the pelvis' has guided many generations of practitioners. The impact of the first delivery on future pregnancy and delivery decisions by both the patient and the obstetrician is very important. Only active labour itself is the most important determinant of normal vaginal delivery.[14]

It is noteworthy that while progressing from low parity to multiparity the average labor curve continues to change but not toward an ever improved progress. A multipara who has earlier delivered vaginally may still require a caesarean section for safe delivery.[15] In the study, primary caesarean section in multipara is 37.17% which is less than primary caesarean in nulliparous, but they are actually associated with high maternal and perinatal morbidity.

The most common age group in the study is 26-30 yrs age in multiparous women i.e. (39-41%) and 35% primiparous are 20-25 yrs which is comparable to Eastman et al study.[16]

The study showed increased rate of emergency cesarean section i.e. 85% in both groups. In most of the countries around ⅔ of caesarean sections are performed as emergency procedures and ⅓ are performed electively[11,17] but lower than 96.4% study by G Sharmila et al (2016).[15] It may be due to, only complicated cases avail this facility as most of the births take place at homes in the area.

Indications for caesarean section should be the focus of study that leads to increase cesarean section rate. In the study the commonest indications of primary caesarean section observed in both the groups were failure to progress i.e. 31.5% (27% primigravidas and 4.4% multigravidas) and fetal distress i.e. 22.6% (13.7% primigravidas and 8.9% multigravidas).

In primigravidas both indications have higher incidences which correlates with the studies of Kolawole A.O.D. et al (2011)[18] and a study from Lahore, Pakistan, where these remained the main indications.[19] Primparous women had the longest and most gradual labour curve when compared with multiparous women and it may be reduced by achieving adequate uterine contractions during active phase of labour and intensive foetal monitoring is helpful for foetal distress during labour.[20]

We also compare the various other indications of caesarean section in either group and both reveals that antepartum hemorrhage and hypertension are more common in multigravida. A study conducted in the US[21] in urban Bangladesh[22] Boyle A, Reddy UM and Landy HJ[23] etc concluded the same indications for primary cesarean deliveries.

It was seen that there were various incidences of post-operative morbidity for both mother and baby arising from caesarean sections when compared with vaginal delivery. Though the advances in the field of obstetrics have reduced maternal mortality considerably, in the study maternal and fetal morbidity after caesarean section is 11.1% and same results are also documented in other studies.[24]

Regarding fetal problems, there was no FSB or

early neonatal death in either primigravidae or multigravidae in the study. This was because of the careful exclusion of high-risk pregnancies during antenatal and intrapartum period.

Caesarean sections have been long practiced as a life saving procedure for the mother and fetus. But the problem of maternal and fetal morbidity after caesarean section is high and this can be considerably lowered if it is not done for inconsequential indications.

Conclusion:

The study presents the higher incidence of primary caesarean section in primigravidas. Failure to progress of labour and foetal distress were leading causes in both groups, adequate uterine contractions during active phase and intensive foetal monitoring may reduce the caesarean sections rate. The women who had previous uneventful labours, may have different complications during subsequent pregnancy and due importance should be given to each pregnant mother while making a decision for primary caesarean section. Peer discussion on the necessity of caesarean section is required as it has the major contribution in determining the future obstetric course of a woman.

Limitations of study: The study is not without limitations as it is a hospital-based study so limiting the other areas of the community and may not expose the accurate prevalence in the community so further studies are needed for more elaboration

Conflict of interest: None

Funding source: None

Role and contribution of authors:

Dr Shazia Aftab, collected the data, references and did the initial writeup

Dr Saima Ayaz, collected the data and helped in introdcution writing.

Dr Erum Khalid, collected the data, references and helped in introduction writing

Dr Fariha Hussain, collected the data, and helpd in introduction writing.

Dr Komal, collected the data, references and helped in discussion writing.

Dr Tahmeena Ali, collected the data, and helped in interpretation of data

Referrences:

1. Betran AP, Torloni MR, Zhang JJ, Gu ¨lmezoglu AM for the WHO Working Group on Caesarean Section. WHO Statement on caesarean section rates. BJOG. 2016; 123:667–670.
2. Souza JP, Gu ¨lmezoglu A, Lumbiganon P, Laopaiboon M, Carroli G, Fawole B, et al. Caesarean section without medical indications is associated with an increased risk of adverse short-term maternal outcomes: the 2004–2008 WHO Global Survey on Maternal and Perinatal Health. BMC medicine. 2010; 8 (1):71.
3. Betrán AP, Merialdi M, Lauer JA, Bing-Shun W, Thomas J, Van Look P, et al. Rates of caesarean section: analysis of global, regional and national estimates. Paediatr Perinat Epidemiol 2007; 21(2):98–113.
4. Haider G, Zehra N, Munir AA, Haider A. Frequency and indications of cesarean section in a tertiary care hospital. Pak J Med Sci 2009; 25: 791-6.
5. Shamshad. Factors leading to increased cesarean section rate. Gomal J Med Sci 2008; 6: 1-5.
6. Husslein P. Elective caesarean section versus vaginal delivery. Whither the end of traditional obstetrics? Arch Gynecol Obstet 2001;265(4):169–74.
7. Saluja, J. K., P. K. Roy, and K. Mahadik. "Study of primary caesarean section in multiparous women." NJIRM. 2014; 5(2) :27-29
8. Frequency and indications of primary caesarean section hospital Meha Agrawal1, Supriya Waydande 1Resident, 2Associate Professor, 3PG Guide , 4Professor and HOD, Department of OBGY, BVDU Medical College and Hospital, Sangli, Maharashtra, INDIA.
9. Desai E, Leuva H, Leuva B, Kanani M. A study of primary caesarean section in multipara. Int J Reprod Contracept Obstet Gynecol. 2013;5(2):320-24.
10. Jabir M."Risks of rising cesarean section rates and means to decrease them." Baghdad Teaching Hospital, Baghdad, Irak - Training Course in Sexual and Reproductive Health Research 2010
11. Haider G, Zehra N, Munir AA, Haider A. Frequency and indication of caesarean section in a tertiary care hospital. Pak J Med Sci: 2009; 25(5): 791-796.
12. Shamshad. Factors leading to increased caesarean section rate. Gomal J Med Sci: 2008: (1): 1-5.
13. Kiyoko M Parrish, Victoria L Holt, Thomas R Earterling, Frederick A Connell, James P Logerfo. Effect of changes in maternal age, parity and birth weight distribution on primary caesarean delivery rates, JAMA March 1994; 271 (6): 443-47.
14. Malkiel A, Pnina M, Aloni H, Gdansky E, Grisaru-Granovsky S. Primiparity: a traditional intrapartum obstetric risk reconfirmed. Isr Med Assoc J 2008; 10: 508-11.
15. Study of primary caesarean section in multigravida. G Sharmila, Ch.Nishitha. Asian Pac. J. Health Sci., 2016; 3 (4):89-94
16. Omar, Adnan A. Abu, and Suleiman H. Abu Anza. "Frequency Rate and Indications of Caesarean Sections at Prince Zaid Bin Al Hussein HospitalJordan." JRMS. 2012; 19(1): 82-86.
17. A prospective comparative study of cesarean section in multiparous and primiparous women dr. y. anupama suresh and dr. y.v. suresh, 1Associate Professor, 2Professor. Int J Pharma Bio Sci 2017 July; 8(3): (B) 890-895

18. Kolawole A O D, Onwuhuafua P, Adesiyun G, Oguntayo A, Mohammed Duro A. Audit of primary caesarean sections in nullipara seen in Ahmadu Bello University Teaching Hospital, Kaduna. Australian Journal of Basic and Applied Sciences 2011; 5 (6): 1088-1097. ISSN 19918178.
19. Khawaja NP, Yousaf T, Tayyeb R. Analysis of caesarean delivery at a tertiary care hospital in Pakistan. J Obstet Gynaecol 2004; 24: 139-41.
20. Primiparity as an intrapartum obstetric risk factor Nazia Hashim, Sonia Naqvi, Majida Khanam, Hassan Fatima Jafry Sir Syed Hospital & Medical College for Girls, Karachi. Vol. 62, No. 7, July 2012 J Pak Med Assoc.
21. Tita AT: When is primary cesarean appropriate: maternal and obstetrical indications. Semin Perinatol 2012, 36:324–327.
22. Saha L, Chowdhury SB: Study on primary cesarean section. Mymensingh Med J 2011, 20:292–297.
23. Boyle A et al.Primary caesarean delivery in the United States. Obstet. Gynecol 2013 Jul; 122:33-40
24. Naidoo R, Moodley J. Rising caesarean section rates: An audit of caesarean sections in a specialist private practice. SA Fam Pract 2009; 51: 254-8.