

Rate and Frequency of Indications for Caesarean Section (CS) in A Tertiary Care Hospital

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ABSTRACT

Objective: To determine the rate of caesarean sections (CS) and frequency of their various indications.

Study Design: Cross-sectional study.

Setting: Department of Obstetrics and Gynaecology, Units 1 and 2, Arif Memorial Teaching Hospital (AMTH), Lahore.

Duration: One year, from 1st January 2014 to 31st December 2014.

Methods: All deliveries at gestational age 28 weeks and greater in the hospital during 2014 were included. Data were taken from labour room and theatre registers. Patients' hospital number, booking status, parity, date of delivery, type of delivery and indications of emergency and elective caesarean sections were recorded.

Results: All deliveries at gestational age 28 weeks and greater in the hospital during 2014 were included. Out of 1100, Multigravidae were 55.1% (606), whereas primigravidae were 44.9% (494). 62.4% (686) were caesareans (CS) and 37.6% (414) were vaginal deliveries. 94.92% (393) were spontaneous vaginal deliveries, 2.41% (10) vaginal births after caesarean (VBACs), 1.93% (8) were assisted breech deliveries (ABDs), 0.48% (2) vacuum deliveries and 0.24% (1) outlet forceps delivery. Out of 686 CS, 62.24% (427) were emergency CS (Em CS) and 37.76% (259) were elective CS (EI CS).

Conclusion: Currently AMTH has a high CS rate of 62.4%. If quality of vaginal deliveries is improved and CS in primigravidae is avoided as far as possible, the number of EICS can be eventually decreased. Health policy makers and managers should collaborate in designing strategies to improve expertise of dais and general practitioners and improve awareness in population to curtail the number of high risk cases with multiple indications referred for EmCS.

Keywords: pregnancy, caesarean section, indications of CS, delivery, tertiary care hospital.

INTRODUCTION

Caesarean section (CS) is a rapid method of delivery by abdominal route. Its morbidity is 5-10 times higher than that of vaginal delivery.¹ CS is considered by some a controversial issue among health professionals and the debate continues amidst ever rising rates of the procedure in the developed world and especially in developing nations.^{2,3,4}

CS was instrumental in reducing maternal and fetal morbidity and mortality. Later it became the preferred method of delivery in developed countries and urban communities of developing countries.^{5,6,7} In 2014, the International Federation of Obstetrics and Gynaecology (FIGO) advised to undertake CS only when indicated. This was with a view to enhance the wellbeing of mother and babies and to improve outcome.⁸

Similarly in 1985, the World Health Organization (WHO) regarded CS rates greater than 10-15% to be unjustified for any country. It

claimed CS rates greater than 15% to be causing more harm than good till further research.^{9,10}

Therefore many studies have been conducted worldwide to find local CS rates and correlate them with WHO standard. Still controversy over ideal CS rate is going till date. There is still no clear evidence of relative benefits of higher or lower CS rate.¹¹ CS rate has been reported to be 40% in South America, 29.1% in the US, 21.5% in UK.¹² CS on request of mother, fear of litigation, prevailing system of health insurance, increased use of advanced fetal heart monitoring (EFHM) may be some of the reasons of high CS rate in these developed nations.^{3,13}

Current study was undertaken at Arif Memorial Teaching Hospital (AMTH) Lahore. It is a newly established tertiary care hospital on suburbs of Lahore. It is affiliated with Rashid Latif Medical College. In this study, the CS rate at AMTH and various indications of CS were calculated and displayed as tables and graphs. This study will

help to correlate the local CS rate and indications of CS with other national and international studies. Certain hospitals in the country and worldwide have similar CS rates and indications.^{11,14,15} This may show same practice, similar problems, and same solution using same guidelines. This study will encourage researchers to do audit of CS rate at AMTH. This will be a definite step towards improvement of maternal and neonatal care.

MATERIALS AND METHODS

Data were taken by doctor herself retrospectively from delivery suite registers and theatre registers of unit 1 and 2 Gynaecology department of AMTH (Arif Memorial Teaching Hospital) .¹⁰ Only the deliveries occurring at gestational age 28 weeks or greater and dating from 1.1.2014 to 31.12.2014 were included. Cases of uterine rupture were not included.¹ Following variables were recorded: hospital record number, booking status, parity of patient, date of delivery, type of delivery, type of CS and their indications. Vaginal deliveries were divided into spontaneous vaginal delivery (SVD), vaginal birth after caesarean (VBAC), assisted breech delivery (ABD), vacuum and forceps delivery. Caesarean deliveries were divided into emergency caesarean sections (EmCS) and elective caesarean sections (EICS).¹⁶ Regarding parity, women were divided into two groups, primigravidae and multigravidae. Primigravidae were women pregnant for the first time. Multigravidae were women pregnant for more than one time. Fetal distress was considered to be a maternal complaint of decreased fetal movement, nonreactive cardiotocography (CTG), cases of growth retardation with abnormal Doppler studies or meconium staining of liquor.^{15,17,18} To ensure confidentiality patients names were not recorded. Ethics approval for a study of this nature was not needed. Statistical software SPSS version 20 was used for data entry and analysis.

RESULTS

All deliveries at gestational age 28 weeks and greater in the hospital during 2014 were included. Out of 1100, Multigravidae were 55.1% (606), whereas primigravidae were 44.9% (494).461 were booked and 639 unbooked. 62.4% (686) were caesareans (CS) and 37.6% (414) were vaginal deliveries.

94.92% (393) were spontaneous vaginal deliveries, 2.41% (10) vaginal births after caesarean (VBACs), 1.93% (8) were assisted

breech deliveries (ABDs), 0.48% (2) vacuum deliveries and 0.24% (1) outlet forceps delivery. Out of 686 CS, 62.54% (429) were Em CS and 37.46% (257) were EI CS.

Table 1:

Variables	Categories	Frequency	Percentages
	Multigravidae	606	55.1
	Primigravidae	494	44.9
Type of deliveries			
	Caesareans	686	62.4
	vaginal deliveries	414	37.6
Vaginal deliveries			
	spontaneous vaginal deliveries	393	94.92
	vaginal births after caesarean	10	2.41
	assisted breech deliveries	8	1.93
	vacuum deliveries	2	0.48
	outlet forceps delivery	1	0.24
C-sections			
	Emergency C-sections	429	62.54
	Elective C-sections	257	37.46

Among EmCS ,the most common indication was multiple indications (201/429) (46.85%),followed by fetal distress (115/429) (26.81%),previous 1 CS in labour (25/429),previous 2 or 3 c-section in labour (20/429)and failed induction or failed progress both combinedly (19/429) apart from other minor indications. Multiple indications for EmCS comprised of two or more indications. These indications were fetal distress, prelabour rupture of membranes (PROM) ,previous 1CS in labour, pregnancy induced hypertension (PIH)/pre-eclampsia and failed progress.

Among EICS, the most common indication was previous 1 CS (88/257), followed by previous 2 ,3 or 4 CS (67/257), multiple indications

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(45/257), breech presentation (14/257), cephalopelvic disproportion (CPD), previous pregnancy (7/257), placenta previa (7/257) and other minor indications. Multiple indications for

EICS comprised of any combination of previous 1CS, PROM, breech, uncontrolled diabetes, bad obstetric history (BOH), PIH and placenta previa.

Table 2:

Categories	Frequency	Percentages
Break up of Emergency C-section		
multiple (a combination of two or more indications)	201	46.853
Fetal distress	115	26.807
previous 1 in labor	25	5.828
Failed Induction	11	2.564
failed progress	9	2.098
previous 2 C - Section in labor	15	3.497
Abruption	7	1.632
Eclampsia	6	1.399
previous 3 in labor	5	1.166
primibreech in labor	9	2.098
Absent Liquor	4	0.932
pre-eclampsia in labour	4	0.932
PPROM (preterm pre-labor rupture of membrane),	3	0.699
Placenta Previa	2	0.466
obstructed labor	2	0.466
CPD (cephalopelvic disproportion)	2	0.466
BOH (bad obstetric history)	2	0.466
breech in labor	2	0.466
Chorioamnionitis	1	0.233
PIH (pregnancy induced hypertension) in labour	1	0.233
previous pregnancy in labour	1	0.233
PROM (pre-labor rupture of membranes)	1	0.233
Hydrocephalus in labour	1	0.233
	429	99.988

Table 3:

Categories	Frequency	Percentages
Break up of Elective C-section		
previous 1	88	34.241
previous 2	48	18.68
Multiple (a combination of two or more indications)	45	17.51
previous 3 C-Section	17	6.61
Primibreech	10	3.89
CPD (cephalopelvic disproportion)	10	3.89

Precious pregnancy	7	2.72
placenta previa	7	2.72
Breech	4	1.56
pre eclampsia	4	1.56
Fibroids	2	0.78
IUGR (intrauterine growth retardation)	2	0.78
previous 4 C-Section	2	0.78
transverse lie	2	0.78
Twins	2	0.78
Hydrocephalus	1	0.39
BOH (bad obstetric history)	1	0.39
Oligohydramnios	1	0.39
precious pregnancy	1	0.39
Patient demand	1	0.39
PIH (pregnancy induced hypertension)	1	0.39
Polyhydramnios	1	0.39
	257	99.96

Graph 1:

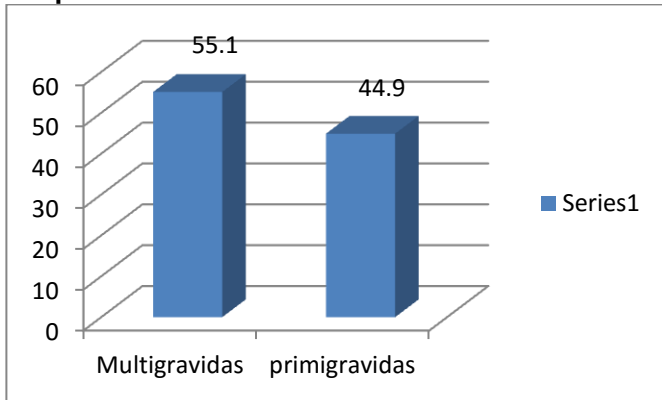
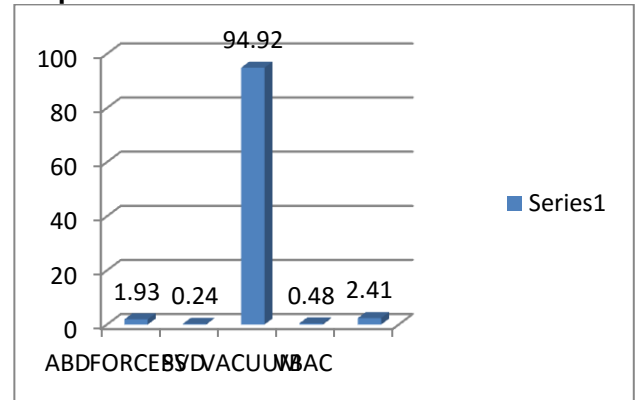


Fig: Type of pregnancy

Graph 3:



Graph 3: breakup of vaginal deliveries

Graph 2:

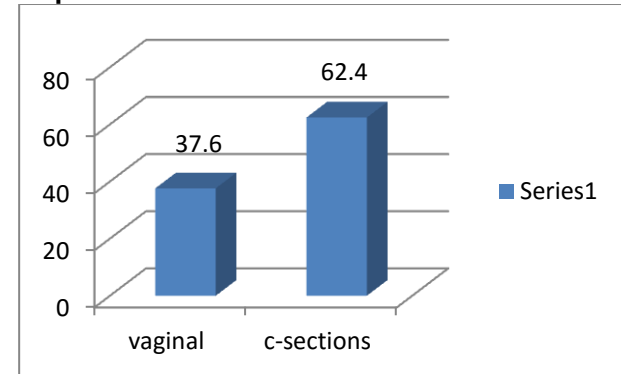


Fig: break up of types of deliveries

Graph 4:

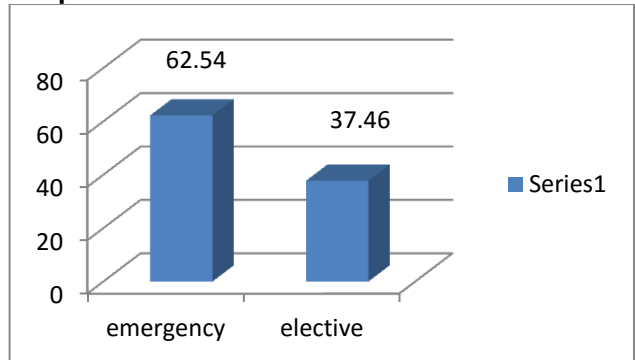


Fig 4: break up of type of c-section

DISCUSSION

These results show a high CS rate of 62.4% at AMTH. Also the proportion of EICS and Em CS is 1/3rd and 2/3rd respectively which is similar to some other studies.^{11,19,20} Proportion of

primigravidae to multigravidae is akin to other national studies.^{14,21}

The following table shows similar high national and international CS rates:

Sr. No.	Hospital	City/Country	CSR	Year
1	Sir Ganga Ram Hospital	Lahore/Pakistan	21.07%	2000-01 ^{8,19}
			36%	2011-13 ²¹
2	Liaqat National Hospital	Karachi/Pakistan	44.8%	2014 ²²
3	Holy Family Hospital	Rawalpindi/Pakistan	45%	2008 ⁸
4	Ayub Teaching Hospital	Abbottabad/Pakistan	45.1%	2006-07 ¹⁴
5	CMH	Rawalpindi/Pakistan	56%	2011-12 ⁸
6	Isra University Hospital	Hyderabad/Pakistan	64.7%	2004 ^{11,20}
7	Punjab Institute of Medical Sciences	Jalandhar/India	65%	2012 ¹⁵

In a large teaching hospital in Kolkata CS rate was 49.9% and CS rate was 50% in Madras(1997-99), West Bengal and Andhra Pradesh.^{15,17} 1 in every 2 births in China is by CS, 1 in every 3 in USA in 2010 were by CS. Rate is 2 in 5 (40%) in Thailand, Veitnam and Italy, more than 35% in Brazil and nearly 1 in 5 in India.^{1,10,15,23} In a study in 1999, nineteen countries of Latin America were focused. CS rates were below 15% in seven countries whereas 16-40% in the remaining countries. It was observed that 850000 CS were carried out unnecessarily. These figures showed higher burden on the scarce resources of those poor countries along with higher risk for younger women who used this mode of delivery.²⁴ In our study, EmCS were majorly due to multiple indications. Multiple indications mostly comprised fetal distress, previous caesareans and non progress of labour. This was due to high risk referred cases in whom EmCS was done to save baby.¹⁵ This result matched with study by Haider and his colleagues at Isra Medical University Hospital, Hyderabad, where only complicated cases were referred and most were unbooked.¹¹ Second largest indication of EmCS was fetal distress. Fetal distress also comprised 128/201(64.9%) of multiple indications for EmCS. Several other studies show same result.^{15,18,19,21} Non progress of labour alone has been shown to be an important indication of CS in various studies.^{10,14,19,21} It was present in many cases of multiple indications of EmCS in our study. Previous classical CS and CS closed in a single layer are associated with higher risk of rupture in subsequent pregnancies.²⁵ As nature of uterine scar was unknown so previous 1 or more were CS was an important component of multiple

indications of EmCS in this study. Previous 1 was the foremost indication of EICS, followed by previous more than 1 CS. Many studies show similar results.^{1,10,14,20,22} In 2010, 70.8% of previous 1 CS in UK underwent repeat CS.²⁶

This study shows that high CS rate at AMTH was much indicated.²⁷ Still our high CS rate stands in contrast to Nordic countries like Norway, France, Sweden and Denmark which have maintained a low CS rate within the range (10-15%) given by WHO.¹⁰ In between January 2002 and December 2009, 22985 deliveries were retrospectively analyzed at a tertiary care hospital in Nigeria. There were 2284 CS with CS rate of only 9.9%.²⁸

Our indications stand in contrast to indications of CS seen in Brazil and UK where high CS rates are mostly attributed to maternal request.^{10,22}

To prevent false diagnosis of fetal distress, and hence CS fetal blood sampling (FBS) should be started.²² Efforts should be made to avoid CS in primigravidae so as to decrease indications like previous 1 or more CS.¹ Primary care providers should be made more skilled and well versed with use of oxytocin.¹⁴ Vaginal deliveries should be promoted as they have low risk of infection and anaesthesia complications and higher rates of breast feeding initiation. Vaginal deliveries also decrease risk of injuries to urinary bladder, intestine, placental abruption, placenta previa, accrete, increta and percreta in subsequent pregnancies.^{22,29,30}

At national level an authority may be established to recommend an optimum CS rate and VBAC rate. This has been done in America where ACOG task force works in collaboration with US department of health and human services.¹⁸

CONCLUSION

Rate of CS noted in our study is higher and reasons are obvious. It is rural hospital and a teaching tertiary care hospital. It is major referral center; all tertiary care hospitals usually receive difficult deliveries. The breakup of indications of emergency and elective C-sections shows that all of them had definitive indication. There is a need for proper antenatal care near the house of the mother, and development of local birthing facilities.

LIMITATIONS

Our research is retrospective in nature and it based on secondary data collected by doctor; in such researches missing data may be a problem. Our research is hospital based. It is a tertiary care hospital but is private and situated in rural area adjacent to a metropolis, Lahore. It has a huge catchment area. Complicated and iatrogenically spoiled cases are referred in abundance to this hospital.

As it is a cross sectional study all the cases were included which delivered during that period.

The results may not be representative of the population it is situated in.

It is recommended that a prospective study should be conducted in the whole city in the form of a multi-center study to find out the rate and indications of cesarean section in public, private and NGO hospitals.

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Conflict of Interest: Conflict of interest is declared as none.

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