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The Rate of Caesarean Sections Among Women Delivering at Kampala International University Teaching Hospital in Ishaka Municipality Bushenyi District Western Uganda.

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ABSTRACT

A caesarean section was a surgical intervention that was carried out to ensure the safety of the mother and child when vaginal delivery was not possible or when the doctors consider that the danger to the mother and baby was greater with vaginal delivery. The prevalence of caesarean sections has increased in developed and developing countries. The present study aimed to determine the rate, indications, and immediate outcomes of C-sections at KIU-TH. A retrospective study of medical notes and records was conducted at the Department of Obstetrics and Gynaecology, KIU-TH. Initially, the case records of all women who gave birth at the hospital were retrieved from January 1st, 2018 to December 31st, 2020. Data was collected by trained data collectors using a standardized paper form and then entered into an electronic database. The overall rate of C-sections in KIU-TH was 23.6%. Overall, the most-commonest indication for C-section was obstructed labour (1,21.2%), followed by foetal distress 7,19.8%)%) and previous C-sections 2,18.1%), and the least common cause of C-section was severe pre-eclampsia .1%). Generally, there was a low Apgar score noted, but it kept on increasing with time from the time of delivery. The overall rate of C-section KIU-TH was 23.6%. This rate was higher than the WHO standard.

Keywords: C-sections, Mother and child, Vaginal delivery, Obstructed labour, KIU-TH.

INTRODUCTION

A Caesarean section means the delivery of a viable foetus through an abdominal incision and a uterine incision [1, 2]. It has been one of the most important operations in obstetrics and gynaecology because of its lifesaving value to both mother and fetus. It is a surgical procedure in which one or more incisions are made through the mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies or, rarely, to remove a dead fetus. It is an important lifesaving operation under circumstances when vaginal delivery might pose a risk to the mother or babies. The abdominal incision could be in the midline vertical below the umbilicus, infra-umbilical midline incision. It may be below a transverse, slightly curved linear incision at the level of the pubic hairline and extend somewhat beyond the lateral borderer of the rectus muscle (fenestral). [2, 3]. The uterine incision may be made vertically to the body of the uterus above the lower uterine segment and reach the uterine fundus (classical 1000172C/S), or it may be in the lower uterine segment transversally or vertically (LUSC/S) [1, 3, 4]. According to the Pregnancy Labour and Birth Journal of 2017, C/S can be done under spinal or general anaesthesia, and it takes around 45 minutes to an hour; however, healing can take about six weeks. A woman can typically begin breastfeeding as soon as she is awake and out of the operating room[5]. Established guidelines recommend that caesarean sections not be used before 39 weeks of pregnancy without a medical reason [6]. Abdominal delivery is advantageous to a foetus that is at definite risk from labour or vaginal delivery. Comparing survival rate and neurologic follow-up in infants delivered by elective C/S and infants delivered vaginally shows an approximately two-fold increase in death rate and neurologic abnormality among those delivered by elective C/S given the ideal circumstances of full vaginal delivery and C/S. Vaginal delivery is more advantageous for both mothers and infants than C/S. [7]. There is an increase in trend in both primary and repeat caesarean rates. Although WHO has recommended that C/S rates should not be more than 15%, as rates above these are not beneficial, the incidence of C/S rates is increasing[8]). The reasons for the increase are multifaceted. Previous caesarean section, foetal distress, especially its detection by continuous electronic foetal monitoring, more liberal use of caesarean section for breech presentation, abdominal delivery of growth retarded foetus, delayed childbearing, increasing body mass, multiple gestations, prematurity,

maternal request, and fear of litigation are commonly cited causes. [9]. As with any surgery, caesarean sections are associated with short- and long-term risks, which can extend many years beyond the delivery and affect the health of the woman, her child, and future pregnancies. A Caesarean section is associated with an increased risk of blood transfusion, hysterectomy, and death as compared to vaginal delivery. [10]. A uterine scar can increase the risk of uterine rupture, placenta accrete, and placenta previa in subsequent pregnancies. [11] Babies are also at an increased risk of respiratory distress syndrome, accidental injuries due to surgical knives, and iatrogenic prematurity. This increasing trend must be stopped and even reversed without detriment to a continuing improvement in maternal and fetal health. [12, 13].. Identifying the trends in rates and indications contributing to caesarean section would help in formulating guidelines to reduce the caesarean section rate. [14]. As caesarean section rates tend to vary with clinical and social factors such as the demographic factors of patients and the attitudes of health providers, it has been suggested that national caesarean delivery rates do not reflect what is happening locally. [15].

The incidence of caesarean deliveries is increasing every day beyond the WHO recommended rate of 15% for all deliveries. In 2014, the United States C/S rate was 32.2%, which increased from 20.7% in 1996; Latin America had a rate of 40.5%, Europe 25%, Asia 19.2%, and Africa 7.3%. In 2016, Japan conducted a retrospective study at 125 institutions and concluded that the overall C/S rate was 37.3% [16]. Caesarean sections, when adequately indicated, can prevent poor obstetric outcomes and be life-saving procedures for both the mother and the foetus; however, at a time when the caesarean delivery rate as a percentage of live births has been rising globally, there is growing concern about unnecessary caesarean sections[17]. These can increase the risk of maternal morbidity, neonatal death, and neonatal admission to an Intensive Care Unit [5]. The results of some ecological studies indicate not only that no further reduction in mortality occurs when caesarean delivery rates increase above 10%, but also that rates above 15% may be associated with additional mortality. The WHO has suggested that a caesarean delivery rate of 15% should be taken as a threshold that should not be exceeded, rather than a target to be achieved [18]. Outcomes of C/S affect both the mother and the newborn infant. For example, C/S has been associated with higher rates of maternal haemorrhage, infection, and even death, but is protective against perineal laceration and organ prolapse that would occur in vaginal delivery. For the neonate, C/S is associated with lower rates of intrapartum hypoxic injury and neonatal mortality. Infants born to mothers who have had prior caesareans are at increased risk of stillbirth, and in cases of TOLAC, uterine rupture carries risks to the neonate [19]. In KIU-TH, many mothers in labour undergo a caesarean section to deliver, yet this procedure is associated with many adverse effects both for the mother and the newborn baby. A study to identify and document these parameters among women delivering at KIU TH will help establish the magnitude of this problem and provide a platform for the provision of amicable solutions. The study was designed to determine the rate of caesarean section among women delivering at Kampala International University Teaching Hospital in Ishaka Municipality, Bushenyi District, Western Uganda.

METHODOLOGY

Study Design

This was a retrospective study to descriptively analyse both qualitative and quantitative data, whereby hospital records of the Department of Obstetrics and Gynaecology were used specifically to study the rate, indications, and immediate outcome of caesarean sections; these included theatre books and patient files from January 2018 to December 2018. These documents are kept in the records department of KIU-TH.

Area of Study

Kampala International University Teaching Hospital is located in Ishaka municipality, Bushenyi district. Ishaka is located approximately 62 kilometres west of Mbarara town. Ishaka has a population of 16,646; females are 8,840. Kampala International University Teaching Hospital has a bed capacity of 700, providing both outpatient and inpatient services. The study shall be done in the Department of Obstetrics and Gynaecology, maternity ward, at Kampala International University Teaching Hospital. The department has seven specialists, 18 senior house officers, and 14 midwives. The outpatient department has a gynaecology clinic, an antenatal clinic, a mother-and-child health clinic, and a family planning clinic. The inpatient department has a bed capacity of 74, with a gynaecology section, two isolation rooms, a prenatal and postnatal ward, a pre-eclamptic side room, a first-stage room with 10 beds, a labour suit with 3 delivery beds, and an isolated evacuation procedure bed. The department also has two functioning theatres, one in maternity for elective and emergency caesarean sections only and the other in a major theatre for elective and emergency gynaecological procedures. It also has the head of the department's office, a postgraduate teaching room, and a skills lab. The records that were used were for women who came from the catchment areas of KIU-TH, such as Bushenyi, Sheema, Rubirizi, Mitooma, and other neighbouring districts.

Study population

All women who delivered at Kampala International University Teaching Hospital between January 2018 and December 2018.

Inclusion criteria

Women who delivered by caesarean section at KIU-TH, including emancipated minors.

Sample size determination

The sample size was derived from the formula for Dusabe *et al.* [20]. Caesarean section rates and indications at MRRH [21].

$[n = (1.96)^2 pq \div d]$

n: sample size

1.96 (approximate 95% confidence level)

P = estimated number of women delivering by caesarean section = 0.25 (Spencer, 2011).

q: Number of estimated women delivering normally (vaginal), i.e., (1-p) = 0.75

d = absolute precision, margin, or error, i.e., 5% = 0.05.

$n = 1.96^2 \times 0.25\ (0.75) \div 0.05^2$

n = 288

Sampling technique or procedure

The systematic random sampling method was used, where the researcher got every second file until the sample size was achieved.

Data collection instrument

A structured checklist was used to collect information on the rate, indications, and immediate outcome of babies born by caesarean section among women delivering at KIU-TH.

Data collection procedure

The researcher went to the records department, retrieved the files, and collected the information needed for this research.

Validity of Data Collection Instruments

Before the instruments were used for data collection, they were first examined by colleagues taking the same course as the researcher and further scrutinised by the supervisor to ensure that the terms used and parameters highlighted met the research objectives for the study. Content validity was calculated based on the judgement of at least two knowledgeable people. When the result is 75% (0.7) or greater, the instrument is deemed valid for use.

Reliability of Data Collection Instruments

Data was obtained by a checklist. The researcher considered that the items on the checklist were reproducible and consistent.

Data Analysis Plan

Data on the checklists was entered in Microsoft Excel version 2010, and then data from Excel was exported to IBM SPSS statistics version 23 as well as STATA 14.1 (Stata Corp, USA, Texas). The data obtained was summarized as frequencies and percentages and presented using a pie chart.

Quality control

The inclusion criteria were strictly adhered to. Checklists that had been edited before their use were used. The checklists shall be checked for competence before collection to ensure valid data is obtained.

Ethical considerations

The researcher respected patients' record information for matters of confidentiality and only got the information needed for this research. This information was not disseminated, and the records were kept under lock and key.

Privacy and Confidentiality

Identification of patients' files was done using numerical codes. Details of patients' files were kept under lock and key for privacy and confidentiality purposes throughout the research. There was no disclosure of patients' names to the public, and all identities were removed from the results before publication.

Sampling Technique

Systematic random sampling was used, where the researcher got every second file until the sample size was achieved. K = N/n, where N is the total number of files, n is the sample size, and K is the n^{th} file.

Approval Procedure

Approval to carry out the study shall be sought from the Department of Obstetrics and Gynaecology, t the Faculty of Clinical Medicine and Dentistry, the Records Department, hospital management, and finally the KIU-Research Ethics Committee (KIU-REC).

Respect for the community and feedback

The study findings were communicated to the Head of Obstetrics and Gynaecology Department of KIU-TH, Faculty of Clinical Medicine and Dentistry, as well as the Bushenyi Municipality Health Office as a form of feedback.

RESULTS

Rate of caesarean section (n=288)

Table 1: Shows the rate of caesarian section

MONTH	VAGINAL DELIVERIES	C-SECTION DELIVERIES	TOTAL DELIVERIES	PERCENTAGE OF C-SECTION
January	79	22	101	21.7
February	87	21	108	19.5
March	59	20	79	25.4
April	81	25	106	23.6
May	59	22	81	27.3
June	72	21	93	22.5
July	91	24	115	20.9
August	74	27	101	26.7
September	78	30	108	28.1
October	97	25	12	20.5
November	82	26	108	24.1
December	73	25	98	25.4
TOTAL	932	288	1220	23.6

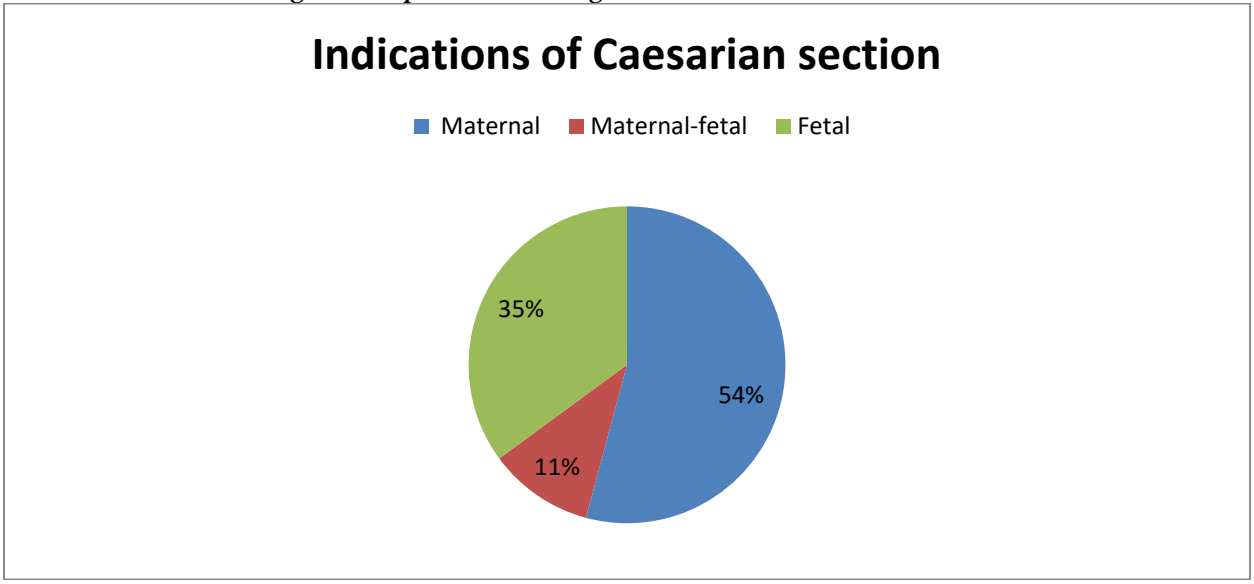
There was a slight variation in the C-section rate amongst the different months of the year of study 2018 with the lowest C-section being noted in February (19.5%) and the highest C-section rate being noted in September (28.1%). On average the C-section rate was 23.6%.

Indications of caesarian section (n=288)

Table 2: Showing indications of caesarian section

INDICATIONS	FREQUENCY	PERCENTAGE
Maternal indications		
Previous Cesarean section	**52**	**18.1**
Obstructed labour	**61**	**21.2**
Severe pre-eclampsia	**5**	**1.7**
PG with contracted pelvis	**38**	**13.2**
Maternal-fetal indications		
Cephalo-pelvic disproportion (CPD)	**22**	**7.6**
Placenta previa	**9**	**3.1**
Fetal indications		
Fetal distress	**57**	**19.8**
Abnormal presentation	**25**	**8.7**
Any other indication	**19**	**6.6**

Figure 1: A piechart showing indications of caesarian section



Most of the indications for C/S at KIU-TH were maternal 156 (54%) followed by fetal 101 (35%) and then maternal-fetal indications were the least noted 31 (11%). Among the maternal indications, obstructed labour was the commonest indication for C/S 61 (21.2%) and severe pre-eclampsia was the least cause of C/S 5(1.7%). Overall the commonest indication for C/S was obstructed labour 61 (21.2%) followed by fetal distress 57 (19.8%) and then previous C/S 52(18.1%) and the least cause of C/S was severe Pre-eclampsia 5(1.7%).

Immediate outcome of babies born by caesarian section

Table 3: Showing Immediate outcome of babies born by caesarian section

APGAR SCORE	FREQUENCY	PERCENTAGE
At 1 minute		
7-10	**156**	54.2
4-6	**92**	31.9
0-3	**40**	13.9
At 5 minutes		
7-10	**213**	74.0
4-6	**58**	20.1
0-3	**17**	5.9
At 10 minutes		
7-10	**248**	86.1
4-6	**32**	11.1
0-3	**8**	2.8

At 1 minute 54.2% of the babies had an Apgar score of 7-10, 31.9% of the babies had an Apgar score of 4-6 and 13.9% of the babies had an Apgar score of 0-3. At 5 minutes 74.0% of the babies had an Apgar score of 7-10, 20.1% of the babies had an Apgar score of 4-6 and 5.9% of the babies had an Apgar score of 0-3. At 10 minutes 86.1% of the babies had an Apgar score of 7-10, 11.1% of the babies had an Apgar score of 4-6 and 2.8% of the babies had an Apgar score of 0-3.

DISCUSSION

The rate of C/S was 23.6%. This is higher than compared to the study carried out by Atuheire E between 2012 and 2015, which found that the caesarean section rate (CSR) all over Uganda was 18%, with all regional referral hospitals contributing to 25% of the CSR, Mulago National Referral Hospital contributing also 25% of the CSR, and Health Centre IV and general hospitals contributing about 6.3% and 22%, respectively. The study also found that almost all RRHs were above the recommended rate except Gulu and Moroto RRHs, with 10% and 13%, respectively. Hoima and Mbarara RRHs had the highest with 34% and 37%, respectively. The rest of the RRHs had moderate CSR but still higher than recommended with Mbale, Mubende, Masaka, Jinja, Fortportal, Soroti, Kabale, and Arua, with 17%, 20%, 20%, 23%, 28%, 28%, 28%, 28%, and 31%, respectively. It was also noted that 13 districts had no CS services,

including Amuru, Pader, Bulisa, Nakasongola, Bukedea, Budaka, Namutumba, Gomba, and Namayingo. This high prevalence in KIU-TH is probably because KIU-TH covers a large population like any other regional referral hospital, and besides being a teaching hospital, sometimes irrational decisions to do C/S might be made so that students practice and perfect their skills, especially senior house officers. We did not take into account mothers delivered at home, in private clinics, or other nearby hospitals. This estimate, therefore, is higher than the overall mean prevalence worldwide, which was found to be 18.6%, with a range from 6% to 27.2% [22]. This prevalence was within the range of the overall rate of C/S in African countries, which ranged from 26.2% in Egypt having the highest rate to 5.3% in Mauritania having the lowest rate [23] .Our estimate is higher than the previous studies done in some developing countries, such as 21.7% at the Gynaecology Ward, Lady Reading Hospital, Peshawar, Pakistan [24] and 21.1% at Mizan Aman General Hospital in Southwest Ethiopia [25]. The prevalence of C/S in developing countries may be high because of low literacy, a lack of knowledge and primary health care, and limited knowledge and training of health professionals. However, when our estimate is compared with different estimates from developed countries, it turns out to be lower than some of the published estimates. For example, in the study done in Georgia, the rate was 36%[26], in the Uganda 32% [5],. The increased rate in developed countries may be due to the health insurance system, fear of litigation, on-demand services, and extensive use of foetal monitoring [27]. The prevalence of C/S in developing countries may be high because of low literacy, a lack of knowledge and primary health care, and limited knowledge and training of health professionals. However, when our estimate is compared with different estimates from developed countries, it turns out to be lower than some of the published estimates. For example, in the study done in Lybia, the rate was 36% [24], and in the Latin Ameria, 32% [28],. The increased rate in developed countries may be due to the health insurance system, fear of litigation, on-demand services, and extensive use of foetal monitoring [28].

Most of the indications for C/S at KIU-TH were maternal (156, 54%), followed by foetal 101, 35%), and maternal-foetal indications were the least ted (31, 1 11%). Among the maternal indications, obstructed labour was the commonest indication for C/S 61 (21.2%), and severe pre-eclampsia was the least common cause of C/S 5 (1.7%). Overall, the commonest indication for C/S was obstructed labour (1,21.2%), followed by foetal distress 7,19.8%)%) and previous C/S 2,18.1%), and the least common cause of C/S was severe pre-eclampsia (5.1%). The other frequent indication in this study was foetal distress 57.8%%). Foetal distress has always been one of the most important medical indications for C/S . This study is relatively similar to a study carried out in Fort Portal Regional Referral Hospital in Kabarole district, Western Uganda, which found out that of the mothers undergoing C/S, 78 (39%) were nulliparous, 129 women had no previous caesarean sections (64.5%), 38 had one previous caesarean section (19%), and 33 had two or more previous caesarean sections (16.5%). The median gestation for delivery was 39 weeks, with a range of 28–43 weeks' gestation[29]. The most common indication was dystocia in 44%, followed by presumed foetal distress in 18.5%, a high risk of uterine rupture in 17%, malpresentation in 10.5%, and maternal/foetal compromise in 10% [29]. At 1 minute, 54.2% of the babies had an Apgar score of 7–10, 31.9% of the babies had an Apgar score of 4-6, and 13.9% of the babies had an Apgar score of 0-3. At 5 minutes, 74.0% of the babies had an Apgar score of 7–10, 20.1% of the babies had an Apgar score of 4-6, and 5.9% of the babies had an Apgar score of 0-3. At 10 minutes, 86.1% of the babies had an Apgar score of 7-10, 11.1% of the babies had an Apgar score of 4-6, and 2.8% of the babies had an Apgar score of 0-3. Generally, there was a low Apgar score noted, and this could be because most of the mothers who undergo C/S spend a lot of time in labour as they may first be given a chance of vaginal delivery. Also, there are usually some other delays in most of the settings, which could be health facility-related or patient-related. The Apgar score increased with time from 1 minute to 10 minutes, and this could be due to resuscitation, which is usually done by the health workers.

CONCLUSION

There was a high rate of C/S found in KIU-TH. Obstructed labour, foetal distress, and previous C/S were the most common indications, among others. An educational programme for pregnant women about ways to avoid the risk factors of unnecessary C/S during antenatal care visits is warranted. Looking at the data, there is room for reducing primary caesareans by encouraging VBACs, better re-assessment of referral cases, more active management of labour, audit and feedback cycles, continuous quality improvement, obtaining CTG on every FD patient, performing thorough exams and pelvimetry, maintaining partographs, obtaining estimated foetal weights for suspected LGAs, and better documentation in file.

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