CAESAREAN SECTION RATE AND INDICATIONS AT SULAIMANI MATERNITY TEACHING HOSPITAL WITH REVIEW OF LITERATURE

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ABSTRACT

Background

Caesarean section (C-section) is a frequent obstetric intervention for saving the lives of women and their newborns from childbirth-related complications.

Objectives

The aim was to know the rate and indications of C-section in the Kurdistan-Iraq.

Patients and Methods

Retrospectively-collected data from a single large public institution, Maternity Teaching Hospital, in Kurdistan-Iraq was analysed. All women giving birth in 2016 with a known birth outcome were included. Those who underwent C-section were identified, and indications were recorded. Data analysed using descriptive statistics. A review of literature looking at rate and indication of C-section was performed.

Results

Five thousand and eight hundred sixty (38.4%) of mothers who gave birth from 15235, required C-section. The total number of born-baby was 18573; of them, 259 babies died (1.4%)-(192, 74.1%) following Normal Vaginal Delivery and (67, 25.9%) during C-section. 27% of mothers were primigravida, and the rest were multigravida. Emergency C-section was performed in 4106 (70.1%). The history of ≥2 C-sections was the main indication for C-section (25.7%) followed by breech presentation (13.9%), fetal distress (12.5%), failure of progress (11.9%), failure of induction (11.8%), antepartum haemorrhage (8.3%) and pre-eclampsia (6.8%). There were three maternal mortalities (0.01%), but no maternal mortality following C-section

Conclusion

With the continued war against the Islamic state and economic turmoil, health service in Kurdistan suffered most, but with the goodwill of healthcare professionals, our institution showed comparable results to places elsewhere. Monitoring of clinical indications of C-section is needed to ensure the rational use of the procedure.

Keywords: *Caesarean Section, C-Section, Normal Vaginal Delivery, Incidence, Kurdistan.*

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INTRODUCTION

Since the Nineteenth century, Caesarean section (C-section) has been used as an intervention to save the lives of women and their newborns from serious and life-threatening childbirth-related complications [1]. Despite popularity across the world, this procedure has it is own risks and complications, and therefore its indication has to be strictly monitored and regulated. The rate of population-based C-section has been recommended by the World Health Organization (WHO) to lie between 5 to 15% [2]. In the past few decades, the number of C-sections has risen dramatically and globally; data from both developed and developing countries showed an average rate of (27%) [3-4], with the national average reaching 58% in some countries [5]. Non-medical indications of C-section has risen to almost one-third on a total of 18.5 million C-section performed globally, leading to increased total cost and number of surgical intervention in women giving childbirth [2].

Apart from the adverse impact of unnecessary C-section on maternal and neonatal mortality, the high cost of this procedure may cause an additional burden on the health system, particularly in developing countries [6]. Furthermore, the Kurdistan Regional Government (KRG) has suffered economic turmoil since 2014 as a result of sanctions from the central government and continued the fight against the Islamic State (ISIS). Thus, the health care system has suffered too. Besides, the Sulaimani Maternity Teaching Hospital has been one of the publicly-owned hospitals that suffered from scarcities of resources and financial constraints to an extent its doctors and health care professionals' salary become seasonal at best. Moreover, the deficiency of medicine and hospital infrastructure reached to the level that, patients were required to buy labour induction agents and medications that were used for prevention and control of bleeding such as Methergine and Misoprostol from local pharmacies outside the hospital.

To date, there is no published data on the rate of C-section in KRG, Iraq. This study report results from a single large publicly-owned Maternity Teaching Hospital in Sulaimani city.

PATIENTS AND METHODS

A retrospective case note review of the women was performed, covering all admissions to a single large public institution, i.e., Maternity Teaching Hospital, in Kurdistan-Iraq over one year during 2016. Data was collected using Microsoft Excel, and patients' obstetric journey was recorded at the time of admission through the discharge. The mode of delivery, the complication of delivery, maternal, and babies' outcomes were recorded. Simple descriptive statistics used to analyse frequency and percentages. Data analyses were performed by using the Excel Spreadsheet, and a review of literature looking at rate and indication of C-section was performed.

RESULTS

Of 55993 attendees, 22350 women were admitted; and of them, 7493 required surgical procedures, and of the 15235 mothers who gave birth, 5860 (38.5%) needed C-section (Figure 1). The total number of the babies born was 18573; of them, 259 babies died (1.4%)-(192, 74.1%) following normal vaginal delivery (NVD) and (67, 25.9%) during C-section. Besides, the majority of dead babies were premature (207, 79.9%). Moreover, 27% of the mothers were primigravida, and the rest were multigravida. There were three maternal mortalities (0.01%), but no maternal mortality with C-section.

Emergency C-section was performed in 4106 (70.1%) of the women, and the rest (1754, 29.9%) of C-sections were planned electively. Furthermore, the history of two or more C-sections was the major indication for C-section (25.7%), followed by breech presentation (13.9%), fetal-distress (12.5%), failure of progress during labour (11.9%), failure of induction of labour (11.8%), antepartum haemorrhage (placenta previa, abruptio placenta and placenta accreta) (8.3%), and pre-eclampsia (6.8%) (Figure 2).

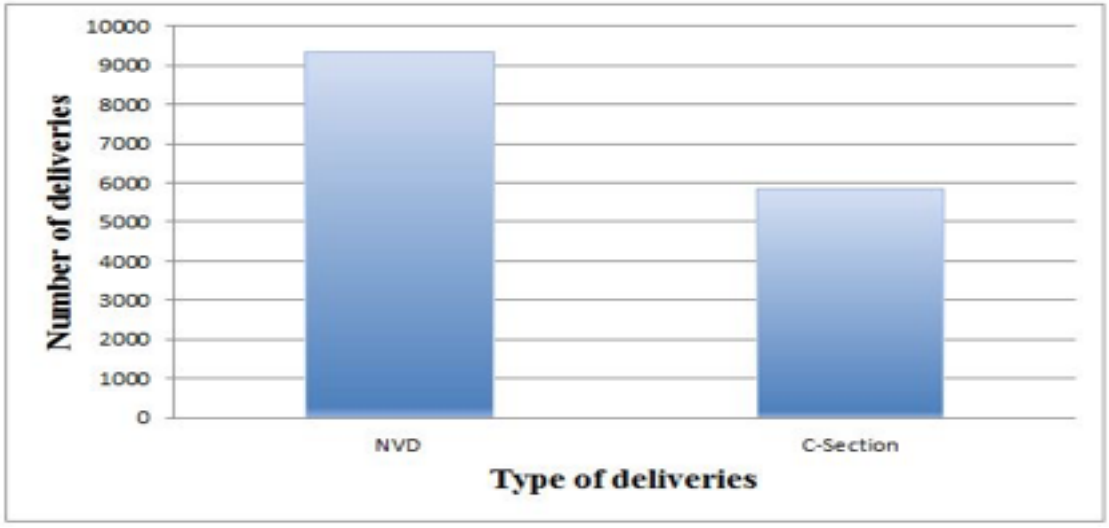

Figure 1. Type of deliveries. Normal Vaginal Delivery (NVD); Caesarean Section (C-section).

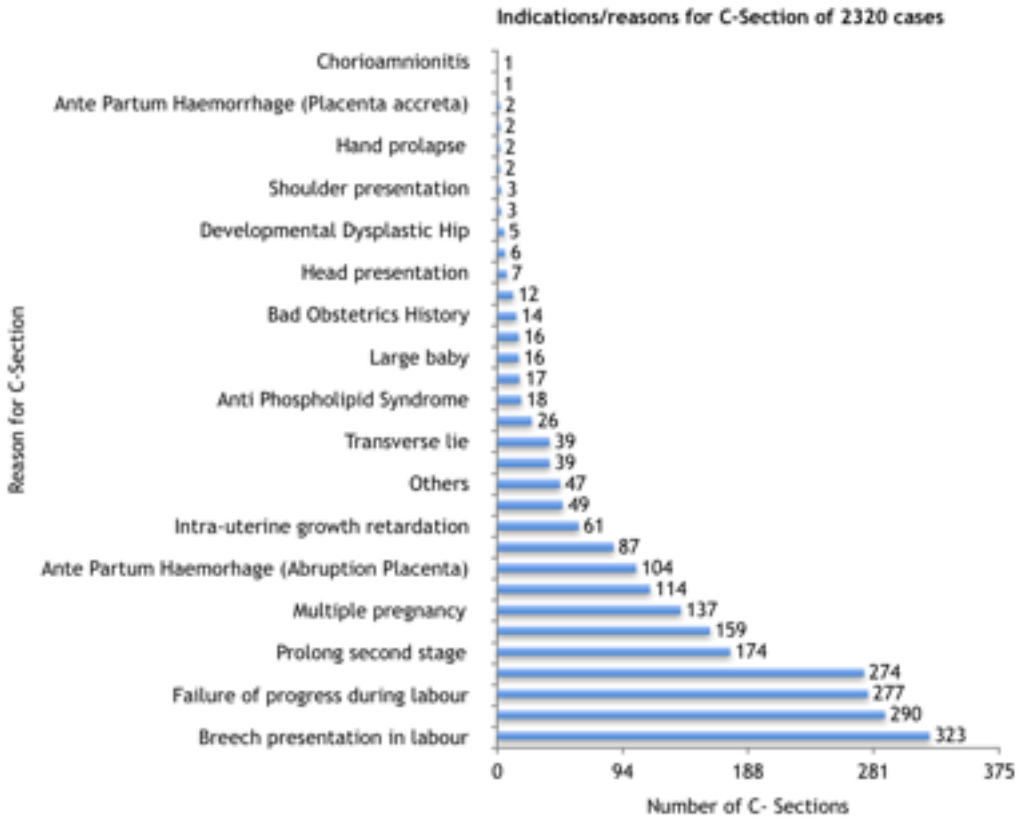

Figure 2. Indications/reasons for C-Section on 2320 cases.

DISCUSSION

Obstetric services in developing countries present a significant challenge to doctors and health care professionals. Over 500,000 women still die each year from complications of pregnancy and childbirth; 95% of them in Africa and Asia [7]. The lifetime risk of dying during pregnancy is 1 in 16 in sub-Saharan Africa, as compared with 1 in 2800 in developed countries [7]. The devastating effect of poverty, war, and poor socioeconomic status in developing countries have had a similar impact on neonatal mortality and morbidities [7].

There is little known about the situation of obstetric service at KRG of Iraq. Since 2014, the central government of Iraq has stopped the yearly budget to KRG. With the continued war against ISIS, KRG has faced an economic constraint to an extent the salary has become almost seasonal across all institutions in the country. In this era, health sectors have suffered most. With all difficulties that the health care system in KRG has faced, Sulaimani Maternity Teaching Hospital was able to maintain obstetric services comparable to most developing countries. Moreover, knowing the rate and indication of C-section is extremely important and has never been explored before in KRG. Therefore, this study represents the first of its kind to report on this crucial subject.

Our series in 2016 have shown a higher rate of C-section than global recommendations of 10-15% [8]. The study of Molina et al. [9] also reported a rate of national caesarean delivery rates of up to 19 per 100 live births and suggested that previously recommended national target rates for caesarean deliveries may be too low. Although previous C-section, particularly two or more C-sections, is the well known main indication for C-section, most literature reports result from other reasons for C-section [8]. This study, therefore, analysed data on 2320 deliveries looking at rate and indications of C-section and compared it with published data from other countries. The top 10 indications for C-section were breech presentation, fetal-distress, failure of progress during labour, failure of induction of labour, antepartum haemorrhage, pre-eclampsia, multiple pregnancies, oligohydramnios, Intra-Uterine Growth Retardation (IUGR) and pregnancy-induced hypertension (Figure 2). Breech presentation is well known to increase the risk of perinatal mortality compared with planned vaginal delivery, and three factors are identified to contribute to it: avoidance of stillbirth after 39 weeks of gestation, the avoidance of intrapartum risks and the risk of a vaginal breech birth [10]. These avoidable risks might, therefore, be the reason for the highest rate of C-sections in our series.

Across many countries, repeated C-sections seem to be the most frequent indication for C-section [11-12]. In this aspect, our service was better and more aligned with recommendations from expert bodies across the world. National Institute for Health and Clinical Excellence (NICE) and the American College of Obstetricians and Gynaecologists have clearly instructed that previous C-section should only be an indication in the presence of obstetric emergencies [13-14]. Moreover, C-section for fetal distress has a prevalence of about 20% and like our study, seen as a second leading cause for C-section [15-16]. Furthermore, the high prevalence of C-section among prolonged childbirth-related and failure of induction group is also shared by other studies in the literature [16]. The authors believe that a shortage of medication such as induction agents could have been one of the reasons for the large number of cases of C-section due to prolonged labour or failure of induction in the current study.

Prolonged labour has contributed to the rising C-section rate in several population-based studies [17]. Researchers, therefore, recommend better management of the second stage of labour through augmentation; this can be extremely useful without causing severe birth asphyxia [18-19]. Literature also suggested monitoring of labour by using simple graphs such as partograph which can significantly reduce C-section rate to as much high as 31% [18]. Thence, the implementation of partograph or similar monitoring graphs could be one recommendation of our study.

In some areas, we seem to be doing exceptionally well comparing our result to what is reported in the literature. For example, oligohydramnios was an indication for C-section in only 3.5% in our case series. Oligohydramnios was the indication for at least 14% of C-section in other studies [20]. Subjective variations of the amount of amniotic fluid on sonography might be the reason for the overdetection of oligohydramnios. Higher C-section in this group of patients raises issues on the validity of ultrasonographic results which seems to be common practice in many countries [21]. This issue could be best addressed with serial ultrasonographic examination during antenatal visits which can also identify potential fetal threats in advance [21]. Our low incidence of oligohydramnios as an indication

for C-section could well reflect a more effective and efficient ultrasonographic examination compare to what is widely reported in the literature.

Many factors have been implicated in the global increase in the number of obstetric interventions, particularly the incidence of C-section. The widespread application of cardiotopography showing fetal-distress has been regarded as one of the factors. The Oladrian et al. [22] conducted an observational study that showed a 72% caesarean Section rate. Besides, the study by Kulkarni et al. [23] also showed a progressive rise in operative deliveries for fetal-distress from 5.17% in the reactive group to 28.5% in the ominous group.

Another interesting area is the rate of maternal mortality in our series. Our rate of 0.01% across one year is impressive. Also, it is particularly interesting as we had no death related to C-section. In most centres in the world, maternal mortality is higher following C-section as compared to NVD. A recently published paper from Netherland reported the risk of maternal death after caesarean section as 21.9 per 100.000 caesarean sections (86/393443) versus 3.8 deaths per 100.000 vaginal births (88/2291503) [24]. Thus, it might well indicate a more vigilant and thorough approach while selecting cases for C-section. It was also noted in our series that fewer babies died following C-section. These two areas could be explored more in the long term.

This study is a valuable first step in this much-debated area. Further works needs to be done, mainly aiming at clinical audits and feedback to apply more robust criteria to expose patients to C-section. A meta-analysis from Canadian studies has shown a 13% reduction of caesarean section rate following the introduction of clinical audit and feedback [25] and the authors of this study call for more collaborative work on the city and national level to improve assessment and care of pregnant women during the perinatal period.

The authors acknowledge several limitations of this study. Firstly, the study is retrospective in design. Secondly, data collected was based on a single publicly-owned institution, and there are still home deliveries, particularly in the rural areas, which this study could not identify or explore. Collective results from other private sectors could be the next project to determine the population-based rate of C-section in the researchers' city. Future studies could potentially look at patients' demography and socioeconomic status in more depth to capture variations across different sectors of the community. It will also be interesting to perform multi-centre analysis across the Kurdistan-Iraq which will be the scope for the next study. Nevertheless, the finding from this first study will set a stone for future research works.

In conclusion, obstetric services in developing countries present a significant challenge to doctors and health care professionals. There is little known about the situation of obstetric services at KRG, Iraq. With the continued war against ISIS, KRG has faced an economic constraint to an extent the salary has become almost seasonal across all the institutions in the country at the time of this study. With the goodwill of healthcare professionals and re-organisation of the services, our results are comparable with results from most developing countries across the world.

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