INCREASING RATE OF CESAREAN SECTION IN SULAIMANI MATERNITY TEACHING HOSPITAL FOR THE PERIOD FROM 2008 TO 2018

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ABSTRACT

Background

There are many modes of delivery for pregnant women; the commonest of these include vaginal delivery (VD) with or without episiotomy, forceps delivery, and cesarean section (CS). Whenever possible it is preferable to encourage vaginal delivery to minimize the morbidities and mortalities that are associated with cesarean section. On the other hand, when doctors estimate the risk of VD, which could be high in certain conditions for the baby and/or the mother, cesarean section will be performed.

Objectives

To determine the increasing rate of cesarean section in relation to vaginal delivery in Sulaimani Maternity Teaching Hospital from 2008 to 2018.

Patients and Methods

A retrospective study, data were collected from medical reports of pregnant ladies, delivered their babies either by vaginal delivery or cesarean section starting from January 2008 to December 2018. All data were retrieved from the department of statistics at the mentioned period of time were 180,625 cases, and numbers of each group of the patients were separately analyzed. As well as the primigravida and multigravida were sub grouped in each of these two major groups.

Results

From the total cases, 123,836 cases (68.6%) were vaginal delivery, and 56,789 cases (31.4%) were cesarean section. There is a notable annual increase in the percentage of CS. However the percentage of primigravida CS is declining annually.

Conclusions

The rate of cesarean section in Sulaimani Maternity Teaching Hospital from 2008-2018 was 31.4% in relation to the vaginal delivery, which is regarded as a higher than the universal standard that has been put by the world health organization, which is between 10%-15%. And this rate is increasing annually.

Keywords: *Cesarean section, Sulaimani, Pregnancy.*

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INTRODUCTION

Modes of delivery vary according to the mother and/or baby condition, commonest of these includes vaginal delivery (VD) with or without episiotomy, forceps delivery, and the surgical procedure cesarean section (CS). Whenever possible it is preferable to encourage vaginal delivery to minimize the morbidities and mortalities both for the mother and the baby, which are associated with cesarean section. The morbidity and mortality association with cesarean section are increased in developing countries, in which the rate of the CS is increasing [(1)]. Moreover, morbidity and mortality associated with multiple repeat cesarean deliveries [(2)]. On the other hand when doctors estimate the risk of VD, which could be high in certain conditions for the baby and/or the mother, for example early infant death within the first month, which has been recorded in cases of vaginal delivery, approximating 7% in some studies [(3)]. In those situations or similar other conditions cesarean section will be indicated, because there is no evidence showing the benefits of caesarean delivery for women or infants who do not require the procedure [(4)]. For that reason it is recommended to estimate the risk and benefit in all pregnant women separately to choose and decide the right way of delivery of the baby beforehand, to be able to decrease the rate of cesarean section, especially for the primigravida, that is to decrease the rate of cesarean section for next and further deliveries.

There are many indication of cesarean section; among them are the fetal distress, patient's request, previous cesarean section, and many others. Regarding patient request; it is obvious that the mother has the right to choose the way that she wants for delivery of her baby, although this could be applicable if the pregnant mother is at least well educated about all the possible outcomes of all the available modes of delivery on one hand and on the other hand this issue must be explained and discussed with the mother, considering inform consent taking. This can be regarded as one of the preventable factor to reduce the rate of cesarean section, for which further data collection and analysis needed.

Women's request is not a substantial driver of the current problem of overuse, efforts to reduce caesareans must, nevertheless, strongly respect women's rights to choose the circumstances of birth [(5)]. It is important to know that there are many indications of cesarean section which are absolutely indicated and they are not preventable. That's why we should try to keep the rate of CS within 10-15% by targeting preventable indications of CS, probably through collecting more data and conducting more studies.

However, those cesarean sections conducted for those patients with repeated CS, less likely to be prevented. Although this can be done by giving chances to some of them to have their babies by vaginal deliveries, especially those with only one previous cesarean section. For that reason there should be well-organized and established guidelines for the primigravida cesarean section, by taking good medical history and thorough physical examination, of course with the availability of all the necessary equipment to evaluate the safety of both mother and the baby.Further studies better to be done to determine preventable indications of cesarean section, to hit these targets and to decrease the rate of CS as much as possible. The question of elective cesarean section in women with no risk factors has been debated [(6)].

PATIENTS AND METHODS

This study was a retrospective study of collected statistical data of 180,625 cases of delivery from a single center at the unit of statistics, department of obstetrics and gynecology, Sulaimani Maternity Teaching Hospital, Sulaimani Directorate of Health, Kurdistan Region,Iraq. This number includes both vaginal delivery and CS. We have took all of the data, which are already recorded in that unit, this study involved all of these annually recorded data starting from January 2008 to December 2018, total of 132 months. The study conducted after the agreement of the director and the head of department of the hospital, and the permission for the data collection. Data were analyzed by using IBM SPSS statistics version 25.

In our study we analyzed those data which allowed us to compare between the vaginal delivery and cesarean section, to calculate the percentage of the CS to the total births in each year of the given period, regardless of the indications of the cesarean section, as the recent one requires more complex data like age of the mother, number of the pregnancy, previous mode of delivery, presence of chronic disease during the pregnancy like diabetes mellitus or hypertension, gestational age of the baby, size and presentation of the baby, and many others, which is not practical for the large sample size in our study.

RESULTS

The annual recorded total deliveries show that there is no much difference between years. The total number of deliveries over 11 years was 180625 deliveries, ranging from minimum of 12864 in 2018 to maximum of 20737 in 2015. The average number of deliveries in a year for the given period of time was 16420 labors, Figure (1).

Nearly one third (56789 cases), (31.4%) of deliveries out of the total number of the cases included in the study was conducted cesarean section, while the other (123836 cases), (68.6%) were delivered by vaginal delivery. So for those 11 years of the collected data as average the percentage of CS calculated to be 31.4% of the total number. Although there are some fluctuation in the rate of CS for the years, especially last few years, but overall it is obvious that there is an increase in the CS rate or percentage each year, and the peak was noted to be in 2015, Figure (2).

The percentage of the cesarean section done for the primigravida (not the percentage of primigravida cesarean section), was notably decreasing as the year progressed. That is to say that the rate of CS done for primigravida was dropping down in relation to the rate of CS done for multigravida, meaning that mothers with primigravida pregnancy given chances of having vaginal delivery rather than delivery by the cesarean section. This information obtained from the percentage of the primigravida cesarean section in relation to the total cesarean section in a given year, Figure (3).

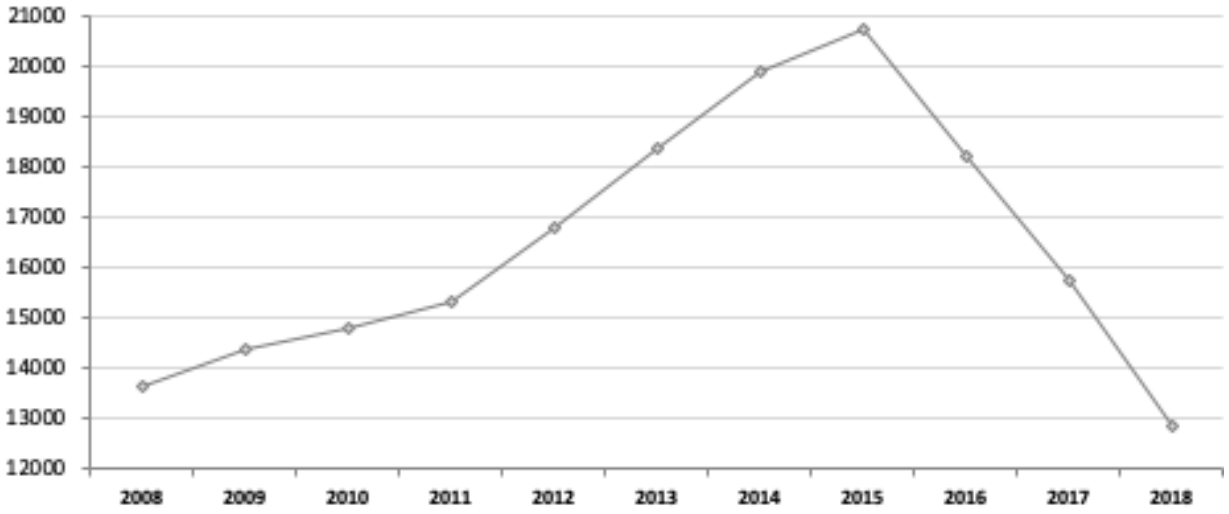

Figure 1. Total number of deliveries to the corresponding years.

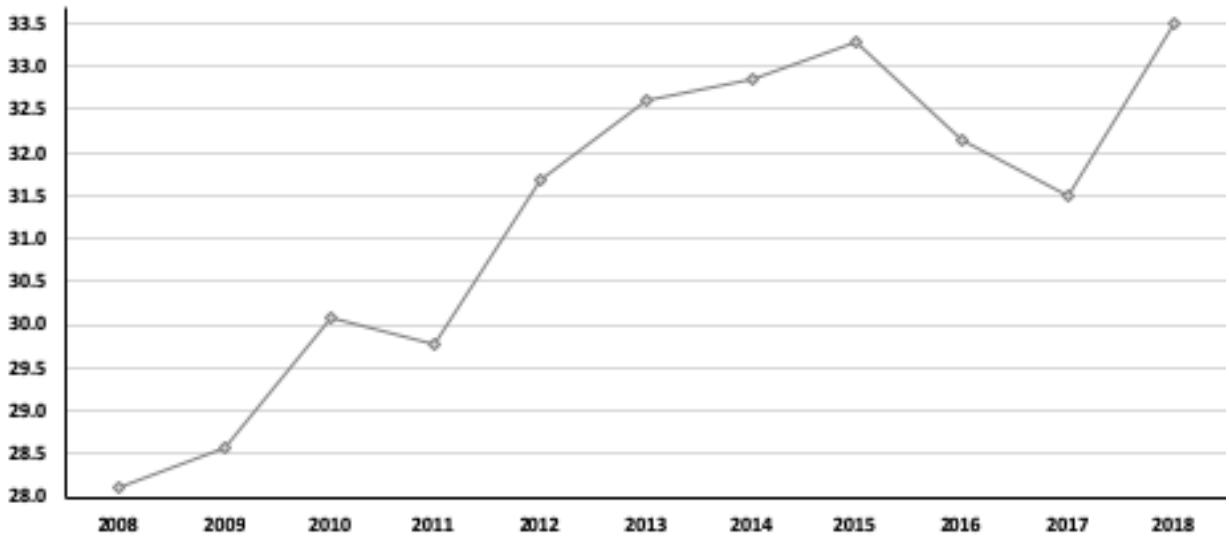

Figure 2. Percentage of cesarean section in relation to total deliveries.

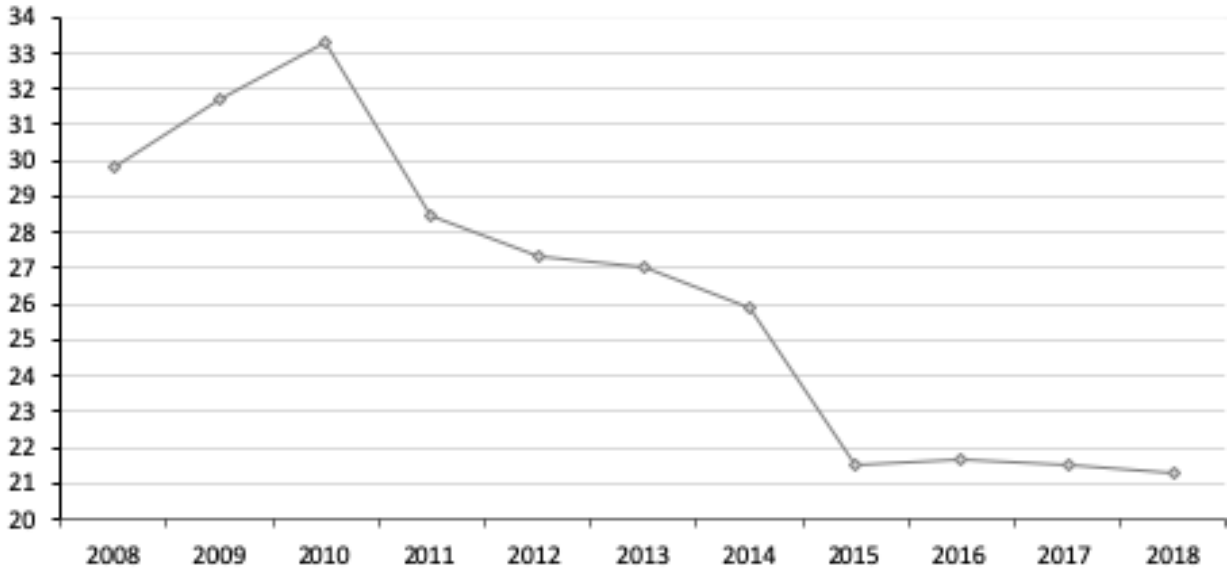

Figure 3. Percentage of cesarean section done for primigravida.

DISCUSSION

In our study we have noticed that the annual number of the total deliveries in the tertiary center like Maternity Teaching Hospital was 16420 cases, regardless of their mode of delivery. Although this figure showed little fluctuation or decline in the last few years, it was expected to have continuous increase of delivery numbers to the corresponding years, even for those last years, which are included in the study. But those numbers in our study are not correlated to the child bearing age mothers in the community to determine the exact picture of the increasing rate of deliveries in our locality, which is not the case in our study. Nevertheless, this might reflect the fact that developing countries have higher rate of birth, and less infertility, and the reverse is true for the developed countries, where the rate of infertility reported to be high [7]. However, other studies reported that developing world had a fall in the birth rate since 1960s from six children as an average to about four children in 1990s [8]. But the recent study analyzed earlier years and conducted in Latin America, which means that there is still possibility of increasing rate of birth in other countries and of course in more recent periods [8].

Obviously the decrease in the birth rate is confined to the average children born per woman, but due to the fact that numbers of childbearing women are high because of the previous high birth rate, hens the term population momentum is applied for the phenomenon of continuous rapid grow of the population. Meaning that birth rate in developing countries is still high. This in turn burdens those countries, which are regarded as poor resources countries in which still they have high birth rate [8].

As it is mentioned earlier, due to the large sample size we couldn't include all indications of CS to be analyzed for better and stronger results, which is highly recommended perhaps for further studies. Anyway, the average percentage of cesarean section in Sulaimani Maternity Teaching Hospital for those 11 years of data included in our study was 31.4%, the range of which was 28.1% to 33.5%. And this is higher than the world health organization statement on the rate of cesarean section, which is 10% to 15%, this is recommended since 1985. But since then there is significant increase in that ratio in many countries, except Japan [9].

World widely, the rate of CS surgery is increasing, but the determinants or factors of this increase, especially in low-income and middle-income countries, are still controversial. The former study included deliveries in 287 facilities of 21 countries that were included in both the WHO Global Survey of Maternal and Perinatal Health (WHOGS; 2004-08) and the Multi-country Survey of Maternal and Newborn Health (WHOMCS;

2010-11), proved that there is overall increase CS rate between the two surveys (26.4% to 31.2%) [9). If it is compared with our study, in 2008 the rate of CS in Sulaimani Maternity Teaching Hospital was 28.1% and in 2011 was 29.8%. However this rate of the CS still on going and increasing up to 33.5%, especially within health facilities, as it has been reported in more up to date researches [10]. This is exactly the same expected rate of CS in our study in Sulaimani Maternity Teaching Hospital. Although this could not reflect the rate of CS in our locality as a city or region, which might be expected to be much higher.Anyway, in this mentioned recent study 169 countries included for better estimation of CS rate. Although there is considerable variation between regions regarding the rate of CS, Based on the most recent data available for each country, 15% of births in 106 (63%) of 169 countries were by CS, whereas 47 (28%) countries showed CS use in less than 10% of births. National CS use varied from 0·6% in South Sudan to 58·1% in the Dominican Republic [10].Most of the low rate of CS (0-20%) was in countries of Africa, Scandinavians, and others. Whereas other countries other than Dominican Republic, include Brazil (55.5%), Egypt (55.5%), and Turkey (53.1%) [11] this can be illustrated in Figure (4).

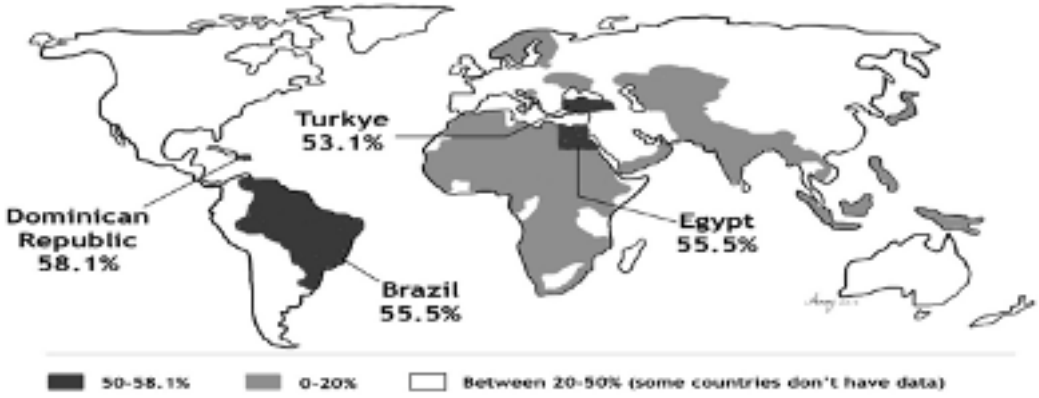

Figure 4. Countries with highest and lowest rate of CS, and countries ranged between them. Amanj K. M. (map draw, text and highlight add done by IOS application: GoodNotes 4)

One of the main objectives of our study is to determine the increasing rate of CS, from 28.1% in 2008 to 33.5% in 2018, which should trigger for further studies and evaluation, to control it, thus controlling some of the unfavorable outcomes regarding morbidity and economic burden. Most recently the main concern about the reduction in the CS rate is to minimize morbidity and mortality of unindicated cesarean section; this was the objective of World Health Organization [5]. As far as cesarean section is a surgical procedure, it costs more than vaginal delivery for the patient and/or the hospital, which was the concern of some of the studies and showed that the cost of the global saving by a reduction of CS rates to 15% was estimated to be $2.32 billion (US dollars); the cost to attain a 10% CS rate was $432 million (US dollars) [12].

In our study, we have noticed that conducted cesarean section for primigravida mothers (primary cesarean section) was decreasing with the year advances, the higher percentage was recorded in 2010 (33.3%), with a decline through other consecutive years till 2018, which was the lowest of all the records of all years (21.3%), although this was not a significant proportion and difference between years, but can be regarded as a good point for further efforts to lower this rate of CS for primigravida mothers in the future. In turn this will decreases the actual rate of all CS for later years, as these mothers may have chance to have vaginal delivery rather than CS, which is less possible for previous cesarean section mother to have this chance. In some hospital the lower rate of primary cesarean section is regarded as ranking, meaning that lower rate of it reflects better scientific and appropriate clinical practice. A study showed that the five-year primary cesarean section rate was 28.9%, with a decreasing trend from 31.4% in 2009 to 26.1% in 2013 [13]. Although in our study we have analyzed similar data for 11 years, and the decrement ratio was more satisfying, but it does not reflect the exact figure of the primary CS, as

it should be compared to the total primigravida, not the total numbers of CS at a given year.

In conclusions; the average rate of cesarean section in Sulaimani Maternity Teaching Hospital for the 11 years (starting from 2008 to 2018) was regarded as high percentage in comparison to the standard of the world, in our study it was 31.4%, and the accepted range according to world health organization is 10-15%. In addition to this, the rate of cesarean section was noted to increase with years.

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