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Epidemiological Features of Maternal Mortality in Five Years Registered in Babylon Maternity and Pediatric Hospital: Retrospective Study

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Abstract

The increase in maternal mortality in some regions of the world reflects the disparities in access to health services. The study aims at: determine the maternal mortality rate during S/C in 5 years ago. A descriptive analytical design was conducted in Hilla city deals with medical records concerning death during cesarean section. By those records the data were collected and analyzed through descriptive statistical data analysis approach used to describe the study variables: Frequencies and Percentages. The results of the study show seven cases of death as the highest percentage recorded in 2020out total number of deaths by caesarean section, in addition to that the maternal death rate is declining to increasing depending on the passage time. The study concluded that the mortality rate was low followed by a very high mortality rate depending on the number of people entering the operation and the availability of health services. It is need to be conducted to involve a national level to assess the associated factors with maternal mortality during Cesarean Section. As well as surveys should be conducted with a large quantity of a representative sample hospital to verify the results of our study.

Keywords

The rates of cesarean section have increased significantly in recent decades. In 2008, 6.2 million unnecessary cesarean sections were performed worldwide; China and Brazil represent approximately 50% of all cesarean sections without medical indication (Gibbons et al., 2010).

This increase in the number of cesarean sections worldwide is related to the improvement of the access of women to this procedure when needed, but it is also related to the indiscriminate use without medical indication. This has culminated in the recent efforts to reduce these rates, while incorporating the obstetric preferences of women (Althabe et al., 2014).

Properly performed cesarean sections that follow an accurate medical indication are life-saving procedures. However, on the one hand, the provision of safe and timely cesarean sections remains a major challenge in countries with high maternal mortality, where they are insufficient; on the other hand, their excess in certain regions results in the challenge of minimizing cesarean sections without clinical indication (Ronsmans et al., 2009).

Though MMR has declined overall from 1990 to 2013 in Iran, direct causes of maternal deaths, like postpartum hemorrhage (27%) and preeclampsia (13%) are still the major causes of maternal death. Complications of cesarean section (CS) are one of the direct causes of maternal death. There is a general perception that emergency cesarean delivery may increase the possibility of maternal death and, because the CS rate in Iran is very high (47.9%) and increasing, there is an alarming threat of the

possibility of increasing MMR in the country as a result of the effects of CS and its long-term complications (Rashidian et al., 2014).

In the Islamic Republic of Iran, the maternal mortality rate (MMR) has decreased from 83 deaths per 100,000 live births in 1990 to 23 per 100,000 in 2013 (a 72% reduction in MMR). However, improvements are still required in tracking maternal health status as well as betterment in the quality of maternal care (WHO , UNICEF , UNFPA, 2014).

According to the 10th edition of International Classification of Diseases (ICD), maternal deaths are classified as direct and indirect. Direct maternal deaths are conditions that are specifically due to pregnancy or related complications, while indirect maternal deaths are those resulting from an underlying systemic disease or a disease that is aggravated by pregnancy (WHO , UNICEF , UNFPA, 2014).

The leading causes of maternal deaths vary in different geographical regions. In developing countries direct causes (specially hemorrhage) are the leading cause of maternal deaths by cesarean section, but in developed countries leading causes are mainly indirect factors (Khan et al., 2006).

The majority of maternal deaths by Cesarean Section in developing countries are preventable. reducing direct causes of maternal death can be accomplished by forestalling both delays brought about by weaknesses in hospital management and medical errors, especially in postpartum hemorrhage and preeclampsia-eclampsia (Clark et al., 2008).

Increasing the level of the awareness of expectant mothers can also be protective against maternal death. However, the most important policy that is required is acknowledgment of Cesarean Section as a serious health threat that has the potential to endanger all advances made in the maternal health program in order that efforts become focused on provision of guidelines for realistic Cesarean Section indications, standardization of Cesarean Section procedures and post Cesarean Section care, and propagation of training courses in risk management and high risk case finding protocols (Pacagnella et al., 2014).

Over a quarter-million maternal deaths and over 2 million stillbirths occur each year due to complications of pregnancy and childbirth, but most of these deaths could be averted with timely emergency obstetric care, including caesarean section. The WHO has recommended a caesarean section rate of at least 10% of live births and sometimes higher, depending on the local context (Say et al., 2014).

Worldwide, almost 30 million caesarean sections are carried out annually. A low-income country in West Africa, has the world's highest estimated maternal mortality ratio of 1360 maternal deaths per 100 000 live births, among the highest rates of stillbirth and neonatal death, and one of the lowest caesarean section rates (Boerma et al., 2018).

Multiple strategies to tackle maternal and neonatal death and stillbirths are being implemented by the Sierra Leone Ministry of Health and Sanitation (MoHS) and its partners. These strategies aim to increase both skilled birth attendance and access to quality emergency obstetric and newborn care, including caesarean section (WHO, 2009).

The government has made strides towards developing a National Surgical, Obstetric, and Anesthesia Plan, and realizes that an increased access to caesarean section also requires quality data to guide safe implementation and offset preoperative mortality (Betrбn et al., 2018).

In 2015, the MoHS initiated the Maternal Death Surveillance and Response (MDSR) system13 to identify, investigate and review every maternal death, and to propose interventions to prevent future deaths. In 2017, the first MDSR annual report was published, describing key characteristics of all reported maternal deaths from 2016 (DRCH, 2017).

Causes of Maternal Mortality due to Caesarean Section

1. Inadequate practical clinical skills of SBAs (only 6% considered competent).
2. Insufficient key infrastructure in health centers, including necessary drugs and equipment (only 21% of Basic Emergency Obstetric and Neonatal Care (BEONC) had the required inputs to treat postpartum haemorrhage).
3. Insufficient integration and coordination in the health care system, specifically in managing the referral systems that potentially cause delays in emergency treatment. This is mainly showed in rural areas where most births are assisted by traditional birth attendants and skilled birth attendants are only contacted when complications develop during labor.
4. Low rates of coverage of emergency-level care, as indicated by the number of available nation-wide obstetricians (only 2,600 compared to the national target of 35,000) and aggravated by uneven distribution.
5. Lack of sufficient infrastructure (e.g. roads access to health facilities) and transportation available for emergencies.
6. Dual public-private contract system of employment for midwives tends to draw them to a wealthier client base in urban areas, despite the incentives offered for rural work. Thus, it tends to leaves the rural areas un served where is often

delivery carried out at home without or with poorly resourced.

The study aims to determine retrospectively maternal mortality rate during cesarean section in last five years at Babylon Maternity and Pediatric hospital.

Materials and Methods

The methods used to conduct this study, contains the design study, setting of the study, sample of the study, the data collection method, as well as the analysis of the data. .

A descriptive analytic study design was used for the purpose of the study is conducted at Babylon maternity and Pediatric Hospital in order to recognize maternal mortality rate during cesarean section.

The study has been carried out in the Babylon province (maternity and pediatric hospital) by using secondary data (death records) mortality among women undergoing cesarean section.

Non-Probability (convenience) sample was collected through a review of records which were selected out from the maternity and pediatric hospital in Babylon province. The current study population consisted of all women records that deceased during cesarean section.

Data were collected retrospectively from secondary data of death certifications, medical records and mortality records.

The SPSS (Statistical Package of Social Sciences) version 20, and Microsoft Excel (2006) were used to analyze the collected data of the study which include the descriptive approach as:

Statistical tables "Frequencies and percent" which are:

$$\% = \frac{Frequency}{Sample\ Size}\ x100$$

Results

This chapter presents the results of data analysis systematically in table and consistent with the aims of this study, which are below:

Table shows 2020 year recorded the highest rate among years.

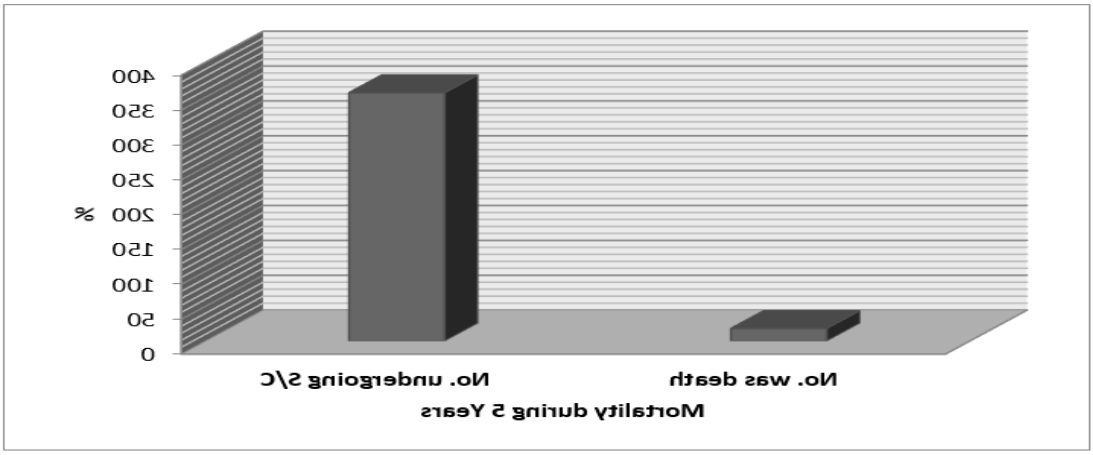

Figure 1: Rate of Maternal Mortality During 5 years

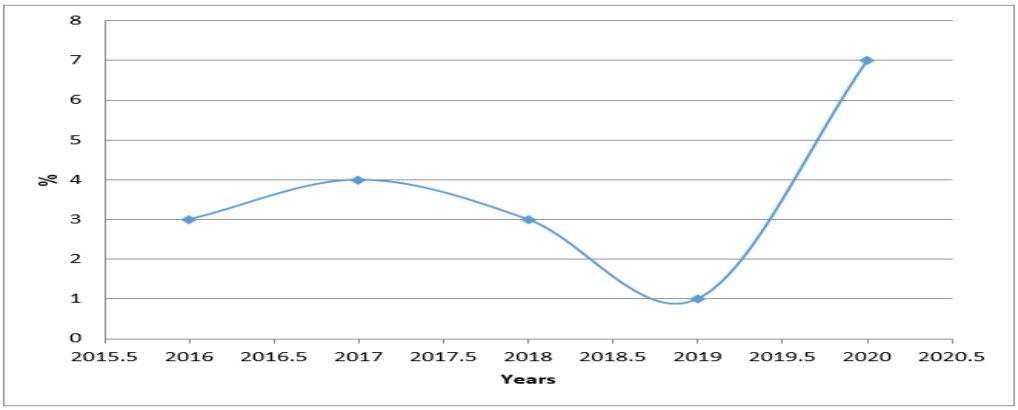

Figure 2: Maternal Mortality Rate During 5 years

This figure show deaths due to cesarean section recorded the highest rate in 2020, with the death rate in 2018 recording the lowest rate among years.

Table 1: The Maternal Mortality During Last 5 Years.

	Rating	No. of female enter to the surgical room	No. of death
Maternal Mortality	2016	67	3
	2017	65	4
	2018	78	3
	2019	57	1
	2020	89	7
	Total	356	18

Discussion

Our findings were recording the high proportion among years "seven out of eighty nine deaths were performed cesarean section". As well as, deaths due to cesarean section recorded the highest rate in 2020, with the death rate in 2018 recording the lowest rate among years. The maternal mortality ratio, reflects the quality of care more appropriately and has become an important indicator of maternal health. There is a year-to-year disparity in mortality, with AL-Babol Hospital in Kut City reporting the highest deaths due to caesarean section in 2014, where we observed that this rate is low in the years to 2018 when it was very high. Depending on the economic situation experienced by the country during the five years that depend on the availability of health services as well as lack of awareness and awareness of the risks of pregnancy (Mohammed, 2018).

Whereas studies have confirmed that; do not pass one day only witness the death of about 830 women due to preventable causes related to pregnancy and childbirth. Developing countries are experiencing 99% of all maternal deaths. It is noted that maternal mortality rates are high in rural areas and among poor groups.. Adolescents, more than older women, face the risk of complications and death due to pregnancy. Skilled care, provided before, during, and after delivery, can save the lives of mothers and their newborns. Maternal mortality rates decreased by 44% between 1990 and 2015. Between 2016 and 2030 and within the framework of the implementation of the goals of sustainable development, the target of reducing the maternal mortality rate in the world to less than 70 per 100,000 live births (Jakobsen et al., 2008).

As well as, Access to caesarean delivery is an essential strategy for reducing child and maternal mortality. However, its overuse can be harmful to both mother and neonate. World Health Organization (WHO) has recommended that CS rates should not exceed 10 to 15 per 100 live births to optimize maternal and neonatal outcomes. However, Molina G et al., in a study of WHO member states representing 97.6% of all live births in the world, has shown that the optimum caesarean rate should be below 19.1% (Ros et al., 2002).

Most of the maternal mortalities (73%) are due to direct causes and rest 27% from indirect causes. The important direct causes are hemorrhage (27.1%), hypertensive disorders (14%), sepsis (10.7%), abortion (7.9%) and embolism (3.2%) (Brown et al., 2009).

Eclampsia and pre-eclampsia account for 88.3% of all hypertensive disorders. Most cases of infection are due to puerperal sepsis. The indirect causes of maternal mortality are cardiovascular disorders (9%), cerebrovascular accidents (7%), pulmonary system disorders (8%), gastrointestinal system disorders (4%), and other indirect causes (9%) (Villar et al., 2007).

The use of interviews and self-report to get more in-depth information gives better results. However, we acknowledge the existence of limitations associated with our work as a missing a lot of information and thus cannot be ruled out the possibility of the emergence of other important topics. Our results may be applied to a larger number of the population is limited because of the unique characteristics of the study sample and also there are small differences in hospital policies.

Conclusions and Recommendations

In light of the results discussion and their interpretations, our study concludes and recommend that:

The study concluded that the mortality rate was low followed by a very high mortality rate depending on the number of people entering the operation and the availability of health services. It is need to be conducted to involve a national level

to assess the associated factors with maternal mortality during Cesarean Section. As well as, surveys should be conducted with a large quantity of a representative sample hospital to verify the results of our study.

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