

## TO DETERMINE THE DECISION TO DELIVERY INTERVAL IN CATEGORY I EMERGENCY CAESAREAN SECTIONS IN A TERTIARY CARE HOSPITAL OF PESHAWAR

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### ABSTRACT

#### OBJECTIVES

*The aim of our study is to determine the exact timing of the decision to the delivery interval in grade I caesarean sections, the factors contributing to the delays and the indications of those caesarean sections.*

#### METHODOLOGY

*This descriptive (cross-sectional) study is conducted in the Gynae B unit of Khyber Teaching Hospital, Peshawar from 1<sup>st</sup> April 2020 to 30<sup>th</sup> September 2020 over a span of 6 months. It is a consecutive non-purposive sampling. All women of any age or parity who underwent an emergency grade I caesarean section were included in the study. Age gestational age, booking status, obstetrical history, the decision to delivery interval, an indication of caesarean, and mode of anaesthesia was noted and entered in predesigned proforma.*

#### RESULTS

*114 patients underwent grade I caesarean in the study period. 61 (54%) were 21-30 years age group and 48 (42%) were in the 31-40 years age group. 26 (23%) patients were not delayed. 31 (27%) got delayed as Operation Theatre table was not available, 18 (16%) could not arrange Caesarean medication and consumables in time, 17 (15%) could not provide preop investigations in time, in 13 (11%) cases patient's attendants were not available. Fetal distress was the most common cause (33%) of delayed caesarean sections, followed by previous scars in labour (20%), placenta previa with APH (13%), obstructed labour (12%), placental abruption and CPD in labour in 8% each. Spinal anaesthesia was given in 79% and General anaesthesia was given in 21% of cases.*

#### CONCLUSION

*26 (23%) patients were not delayed and their decision to deliver interval was less than 30 minutes. The decision to the delivery interval in Khyber Teaching Hospital was far longer than recommended. The leading causes are delayed arrangement of the OT table, OT stuff and investigations.*

**KEYWORDS:** Antepartum Haemorrhage, Caesarean Section, Cephalopelvic Disproportion, Placental Abruption, Placenta Previa Obstructed Labor

## INTRODUCTION

The decision to delivery an interval of emergency caesarean section is a crucial determinant of perinatal outcome and has become a standard of care.<sup>1</sup> National Confidential Enquiry into Patient outcome and death recommends a four-step classification for the urgency of caesarean sections. Grade I caesarean is the one where there is an immediate threat to the mother's or fetus's life; grade II is a fetomaternal compromise, but there is no immediate threat to their lives. Grade III is early delivery required without any threat to fetomaternal life; grade IV is elective caesarean delivery.<sup>2</sup> The ideal decision to delivery interval is 30 minutes. While the 30 minutes recommendation for emergency caesarean sections may be applicable in large obstetric units of developed countries, it is not at all practically true for the small congested maternity

units of developing countries like Pakistan.<sup>3</sup> Category I emergency caesarean section delivery is a commonly performed obstetrical surgical procedure worldwide, and it has a strong association with maternal and fetal mortality and morbidity.<sup>4</sup> According to the American College of Obstetrics and Gynaecology, an emergency caesarean section must be performed within 30 minutes from the time of the decision to the time of performing it.<sup>5,6</sup> In the health systems of low-income countries, which are already very overburdened, often the DDI is extended to 75 minutes.<sup>7</sup> If the DDI is stretched to more than 75 minutes, significant maternal and perinatal mortalities and morbidities can occur.<sup>8</sup> The aim of our study is to identify the factors responsible for the delay in the decision to delivery interval, and it will enable us to set standards and formulate clinical guidelines for better management and optimal care of the patients.

## METHODOLOGY

This cross-sectional study was conducted at the Gynae B unit of Khyber Teaching Hospital, Peshawar, from April 2020 to September 2020. Sampling technique was consecutive non-probability. All emergency caesarean sections of grade I who required delivery within thirty minutes from the time caesarean was decided till the surgery started) were included in the study.<sup>5</sup> The patients referred from private or public sector health facilities and the women who were already admitted in the antenatal ward for obstetric care and later their emergency caesarean was decided were included. Grade II to IV caesarean sections were also excluded. Approval was taken from the hospital ethical committee board. Written informed consent was taken from the patients. A predesigned proforma was used to record the demographic data like gravidity, parity, age, gestational age, booking status, and previous obstetric history. More than thirty minutes was considered the delay for a decision to a delivery interval, and the reason causing that delay for each patient was noted. Indications of that grade I caesareans, the type of anaesthesia given to each patient (either general anaesthesia or spinal anaesthesia), were also recorded. Statistical data analysis and results were presented in frequencies and percentages.

## RESULT

Over six months, 114 patients underwent grade I emergency caesarean section over the study duration. Amongst the 114 women, 54% were in the age group of 21-30 years, followed by 42%, which fell in the 31-40 years age group. 26(23%) patients were not delayed, and their decision to the delivery interval was less than 30 minutes. The causes of delayed emergency caesarean sections are narrated in Table no 1. 90(79%) patients were given spinal anaesthesia and 24(21%) were given general anaesthesia. That, given spinal anaesthesia, had BMI less than 25. The gestational age of 55% of patients was between 37 and 40 weeks, whereas 40% of women were in the 31-36 weeks, gestational age group. Indications of the grade I caesarean sections are mentioned in Table 2.

**Table 1: Causes of Delay in Decision to Delivery (N=114)**

Cause of Delay	f	%age
No delay	26	23%
OT table not available	31	27%
Caesarean medication and consumables not available	18	16%
Investigations not available	17	15%
The patient's attendants are not available	13	11%
Blood not available	06	05%
Shifting to OT delayed	03	03%
Total	114	100%

**Table 2: Indications of Emergency Caesarean Sections(N=114)**

Indication	f	%age
Fetal distress	38	33%
Previous scar in labour	23	20%
Placenta previa with APH	15	13%
Obstructed labour	14	12%
CPD in labour	09	08%
Placental abruption with APH	09	08%
Cord prolapse	03	03%
A footling breech in labour	03	03%
Total	114	100%

## DISCUSSION

The inability to perform caesarean deliveries in the ideal period is unavoidable in resource-poor health facilities like ours and is a source of stress for obstetricians, mothers and fetuses. Ideally, the decision to a delivery interval of an emergency caesarean section is less than 30 minutes. In our study, 23% of cases undergo caesarean section in time, i.e., within 30 minutes of decision time. Average time was 27 minutes in those cases which were not delayed. This is comparable with the study done by Wong TCT et al., where the cases not delayed had a decision to a delivery interval of 27.4 minutes.<sup>9</sup> In contrast, Radhakrishnan G et al. reported a 122 minutes decision to the delivery interval in most of their caesareans which is relatively high, and only 1.8% of their caesareans were done within the standard time.<sup>10</sup> In a local study done at Peshawar, Fayyaz S et al. reported 36% of cases where the caesarean sections were performed within ideal time, whereas, in research conducted by Oppong SA, only 1.7% of caesarean sections could be performed in time.<sup>6</sup> Similar to ours, 23.8% of caesareans were performed in time in a study by Tashfeen K in 2017.<sup>11,12</sup> Regarding the causes of delay of caesarean sections, the nonavailability of an operating table in OT was the most common cause in our study; it was responsible for delay in 66% of caesareans in another study.<sup>10</sup> Likewise it was responsible for delay in most cases in a study by Brandt JA.<sup>13</sup> Non availability of Caesarean medications and consumables was the cause of delay in 16% of cases, according to our study, whereas it was the most common reason for the delay in a few other studies.<sup>14,15,16</sup> 15% of patients could not provide investigations in the time leading to delay in their surgery. Likewise, 10.5% were unable to do so in another study.<sup>11</sup> Shifting to OT in time could not be performed in 3% of cases in our study, whereas it was the most common cause of delay in two other studies.<sup>17,18</sup> In a tertiary care institution like ours, where surgeons, operating room staff and anaesthesia personnel are always available, these factors appear to be the main cause of surgery delays. According to our research, the most common indication for which we

performed caesarean section of grade I was fetal distress(33%). This was the indication of 52% caesarean sections in one and 80% in another study.<sup>14,6</sup> Women followed this with previous scars arriving in labour, which led to 20% of caesareans in our study, whereas it led to delayed caesareans in 27.6% and 28% cases in the other two studies, respectively near to ours.<sup>19,6</sup> Obstructed labour was responsible for 12% of delayed cases in our whereas it was the indication of 20.5% of cases in a local study.<sup>11</sup> In our study, 79% of cases received spinal anaesthesia, whereas 90.2% of patients were given spinal anaesthesia in a study done by Temesgen MM et al. in 2020, and 97.2% received it in another research.<sup>20</sup> On the other hand, Mackenzie IZ et al. concluded that general anaesthesia is more effective if an obstetric surgeon wants a quick decision to deliver interval.<sup>9</sup>

### LIMITATIONS

The sample size was small and it was single centered study.

### CONCLUSION

The decision to deliver intervals in category I caesarean sections conducted at Khyber Teaching Hospital was longer than the ideal period. Only 26(23%) patients were not delayed, and their decision to the delivery interval was less than 30 minutes. The unacceptable long delays in the decision to delivery are associated with poor maternal and perinatal outcomes. The delivery interval was influenced mainly by the nonavailability of an OT table, Caesarean medication, consumables, and investigations. The issue was discussed with the higher authorities of the hospital, as they could resolve the issue by increasing the number of OT tables used in an emergency.

**CONFLICT OF INTEREST:** None

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