

## Rates of caesarian section and trials and success of vaginal birth after caesarean sections in secondary care hospital

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### Abstract

We planned to investigate the rates of Caesarean Section (CS), potential Vaginal Births After previous Caesarean Section (VBAC), and successful VBAC in a secondary care hospital. We conducted an analytical retrospective study at Aga Khan Hospital for Women, Karimabad, Karachi, from October 2011 to September 2012. Data related to total deliveries, Lower Segment CS (LSCS), attempted VBAC and successful VBAC was retrieved from medical records. Total number of deliveries were 3266. Of these, 1021(31.26%) deliveries were conducted by CS. A total of 365(11.1%) had a previous history of one CS and VBAC trial was given to 33(9%) of these pregnancies. The success rate of VBAC was 21(63.6%). Our results highlight that despite having limited resources, our rates of CS, VBAC trials and successful VBACs were within reasonable limits when compared with international rates.

**Keywords:** Caesarean section, Vaginal birth after caesarean section, Secondary care, Pakistan.

### Introduction

In small set-ups such as a small secondary care hospital, decision towards choosing Caesarean Section (CS) over vaginal births are due to several limiting factors such as failure in providing one-to-one support during labour, lack of foetal monitoring techniques, limited number of external cephalic versions and history of previous CS. Optimum child and maternal care requires that medical interventions be kept minimal as per the recommendations of World Health Organisation (WHO).<sup>1</sup> CS is a surgical procedure associated with significant risks,<sup>1</sup> with damage to the foetus with scalpel during the operation being the primary complication.<sup>2</sup> Neonates

born through CS have increased admissions to the neonatal intensive care unit (NICU).<sup>2</sup> In addition, CS increases morbidity and mortality not only in mothers, but the newborns also have increased risks of suffering from respiratory distress syndrome (RDS) and prematurity.<sup>2</sup>

Rising CS rates is a global issue, and a key debatable topic that requires due attention where mother and child healthcare are concerned. The WHO's 1985 recommended CS rate of 15% has been challenged to lack empirical bases.<sup>3</sup> Generally, a trial of labour is encouraged in all women except in very obvious cases where it will lead to complications, before referring them for CS. However, in many secondary care hospitals, full quality care services are not available and failure to provide one-to-one support during labour, limited number of external cephalic version, lack of foetal scalp blood sampling facilities, lack of full-time paediatric anaesthesia team coverage and blood bank services are common. Hence, limited number of Vaginal Births After previous CS (VBAC) trials are carried out and the success rate is even lesser. In a study in Pakistan, the leading risk factors associated with neonatal mortality were preterm birth, CS and intrauterine complications.<sup>4</sup> CS Rates (CSR) vary in different parts of the world according to the settings in question, and continual assessment of CSR is essential to gauge the existing extent of the issue so that corrective actions can be directed and thus neonatal and maternal healthcare be improved.

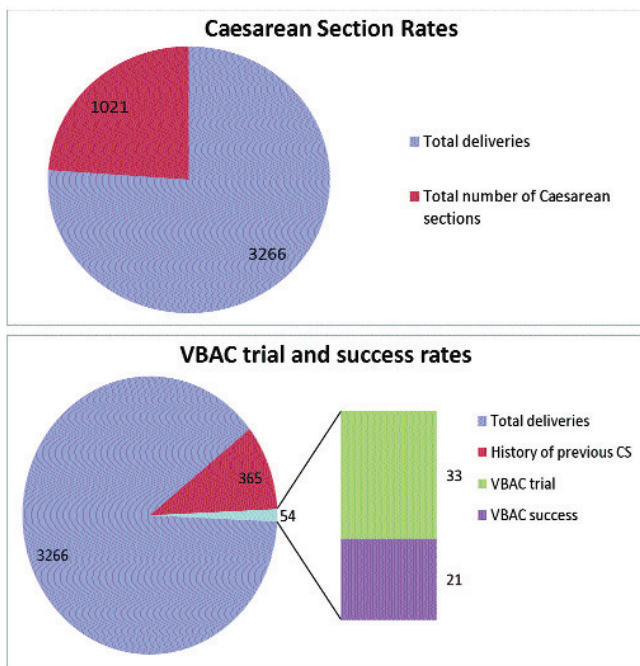
The purpose of our study was to assess the rates of CS and the potential and successful VBAC trials in a small secondary care hospital in Pakistan over a period of one year.

### Methods and Results

The analytical retrospective study was carried out at Aga Khan Hospital for Women, Karimabad, Karachi, from October 2011 to September 2012. Data related to all pregnant women who had been booked and scheduled for delivery at the hospital were included. The total number of deliveries, normal vaginal births and the number of CS performed at the hospital were

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**Figure:** A) Caesarean Section rates with total number of deliveries as the denominator. B) Projection of proportion of women with a history of previous Caesarean Section, Vaginal Births After previous Caesarean Section (VBAC) attempts and successful VBAC trials.

documented from medical records. Furthermore, pregnant women who had previously undergone a CS were singled out and those who underwent a VBAC trial were also listed. Of all pregnancies enlisted for potential vaginal birth after CS, the number of successful VBAC trials was also documented. The study received a waiver from the institutional ethics review committee.

Total number of deliveries were 3266. Of these, 1021 (31.26%) were conducted by CS. This rate included CS done after failed VBAC. A total of 365 (11.1%) had a previous history of one CS, and VBAC trial was given to 33 (9%). The success rate of VBAC was 21 (63.6%) (Figure: A-B).

## Discussion

The CSR in the study was 31.26% during 2011-12. These rates are higher than those reported previously; 24.1% during 1985-1996<sup>5</sup> and 21.07% during 2000-2001<sup>6</sup> in tertiary-care hospitals in Pakistan. However, in many countries across the globe, the CSR has been reported to be much higher than that recommended by the WHO. In the year 2007 alone, the CSR in the US was 31.8% and approximately 45% in Brazil, which could be in part due to defensive medicine, patients' choice, higher maternal age, physician convenience, economic incentives and different doctors providing prenatal care.<sup>1</sup> These rates are much

higher when compared to our results. In Pakistan, the cardinal reasons for CS have been reported to be dystocia, repeat section, foetal distress and cephalo-pelvic disproportion (CPD).<sup>5,6</sup> Although CS is not indicated in cases of increased maternal age, increased body mass index (BMI) during pregnancy, in-vitro fertilisation and multiple pregnancies are the factors that have been associated with increased CSR.<sup>2</sup>

For both medical and non-medical reasons, the CSR has been increasing the world over:<sup>2</sup> from 10.5% in 1990 to 17.8% in 2008 in Belgium; from 16.1% in 1999 to 18.8% in 2003 in France; 7.4% in 1990 to 13.5% in 2002 in Netherlands; 11.3% in 1989-1990 to 23% in 2004 in Britain; 17.5% in 1995 to 23.4% in 2002 in Canada; and 19.8% in 1999 to 20.9% in 2000 in Germany.<sup>1</sup> Over a certain threshold, the increasing rates of CS might only have adverse consequences rather than favouring outcomes.<sup>2</sup> However, since emergency CS in a planned vaginal delivery carries most risk, each case requires individualised decision.

In a meta-analysis, the mother's preference for CS was found only in 15.6% cases, thereby contributing only a small proportion to the rising CSR.<sup>7</sup> This suggests that there may be many other factors for rising CSR the world over. Nevertheless, 'maternal request' is popularly believed among obstetricians to be a cause of rising CSR, but this viewpoint has been criticised by many investigators.<sup>2</sup> This factor was inconsequential in our study since we observed that a great majority of expecting mothers in our hospital opted for a natural vaginal delivery.

The confounding factor of different doctors providing prenatal and obstetric care is especially important in state-run hospitals and in low-income countries where the doctor on-call tends to drive the management decisions, regardless of patient's choice. Since our survey was in a private secondary care hospital, and perinatal and obstetric care was provided by one attending doctor, we believe this could be an important factor in controlled CSR in our survey. The fact that triplet and quadruplet pregnancies are mostly referred to tertiary care hospitals could also be the reason that our CSR was not very high.

A study has highlighted various reasons besides maternal request and defensive clinical practice for increased CSR. For example, myths among Indians and Chinese about birth on an auspicious day, doctors opting for CS to earn more, and women wishing to maintain their young vaginal tone to benefit their sexual partner.<sup>8</sup> Conducting CS for non-medical reasons is of special concern because CS is associated with a four-fold increase in mortality.<sup>8</sup>

Morbid complications such as pelvic infection, sepsis, deep vein thrombosis (DVT), fever, urinary infection, and anaesthetic complications have been reported in 35.7% CS cases.<sup>8</sup>

According to the National Institutes of Health, CS is not recommended for women planning multiple pregnancies.<sup>1</sup> Especially in a setup of a populous country like Pakistan, where women tend to have many children, the rate of CS should be carefully audited from time to time. The key reasons for decreased VBAC trials are "patient safety and physician liability"<sup>9</sup> owing to an unpredictable course of a vaginal delivery, though the causes remain uncertain.<sup>2</sup>

In addition, high CSR is associated with increased obstetric care costs and has an unfortunate negative impact on maternal health. Sonographic scrutiny of the uterine scar might be considered to gauge the risks of uterine rupture when planning on a vaginal delivery after a CS.<sup>10</sup> The current rate of VBAC trials in the US is 8.5%,<sup>6</sup> which is comparable to 9% in our study.

A recent study has reported no difference in neonatal mortality in birth versus repeat CS.<sup>11</sup> Besides an increase in primary CSR due to various factors, the decrease in VBAC trials also contribute to an overall increase in CSR,<sup>12</sup> and thus the associated morbidities and mortalities. A prediction model proposes that VBAC is not associated with increased neonatal morbidity in comparison to elective repeat CS, even if the chances of successful VBAC were at a minimum of 70%.<sup>13</sup> These justify the safety and rationale of attempting VBAC. The rate of successful VBAC in the US has been shown to be 74%<sup>14</sup> as opposed to our rates of 57% in 2007 and 71.7% in 2010. Factors associated with successful VBAC are history of a prior vaginal delivery, greater progress of labour and successful augmentation of labour by oxytocin.<sup>15</sup> The risk of uterine rupture and of other morbidities associated with VBAC increases with shorter inter-pregnancy interval when attempting VBAC.<sup>15</sup> However, maternal choice is an important consideration as higher social class has been positively associated with mother's refusal to have a VBAC attempted.<sup>16</sup>

## Conclusion

Even with limited healthcare resources, the CS rates at the study site were lower than those reported from industrialised countries. In addition, rates of VBAC trials and those of successful VBAC were comparable to earlier

reports. Better healthcare resources and facilities may further help improve the CSR and rates of VBAC trials, and thus the neonatal and maternal healthcare.

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