Evaluation of Trials of Labour after Previous Caesarean Section in Ain Shams University Maternity Hospital: A Retrospective Study

A Thesis

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Hamdy Bakry

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LIST OF ABBREVIATIONS

ACOG	The **A**merican **C**ollege of **O**bstetricians and **G**ynecologists
aOR	**a**djusted **o**dds **r**atio
BMI	**b**ody-**m**ass **i**ndex
CS	**c**aesarean **s**ection
CTG	**c**ardio**t**oco**g**raphy
DM	**d**iabetes **m**ellitus
e.g.	***e****xempli* ***g****ratia*, for example
ECV	**e**xternal **c**ephalic **v**ersion
et al.	***et al****ii*, and other people
FHR	**f**etal **h**eart **r**ate
g	**g**ram
GA	**g**estational **a**ge
HELLP	**h**aemolysis, **e**levated **l**iver enzymes, **l**ow **p**latelet count
HIE	**h**ypoxic-**i**schaemic **e**ncephalopathy
HTN	**h**yper**t**ensio**n**
i.e.	***i****d* ***e****st*, in other words
IUFD	**i**ntra**u**terine **f**etal **d**emise
IUGR	**i**ntra**u**terine **g**rowth **r**estriction
kg	**k**ilo**g**ram
LBW	**l**ow **b**irth **w**eight
LUS	**l**ower **u**terine **s**egment
mg	**m**illi**g**ram
mm	**m**illi**m**etre

NHS	English **N**ational **H**ealth **S**ervice
NICU	**n**eonatal **i**ntensive **c**are **u**nit
NIH	US **N**ational **I**nstitutes of **H**ealth
OR	**o**dds **r**atio
p	**p**robability value
PGDM	**p**re-**g**estational **d**iabetes **m**ellitus
PPH	**p**ost**p**artum **h**aemorrhage
PROM	**p**relabour **r**upture **o**f **m**embranes
PT	**p**re**t**erm
RCOG	The **R**oyal **C**ollege of **O**bstetricians and **G**ynaecologists
RDS	**r**espiratory **d**istress **s**yndrome
RR	**r**elative **r**isk
SLE	**s**ystemic **l**upus **e**rythematosus
SOGC	The **S**ociety of **O**bstetricians and **G**ynaecologists of **C**anada
SROM	**s**pontaneous **r**upture **o**f **m**embranes
TAS	**t**rans**a**bdominal **s**can
TOL	**t**rial **o**f **l**abour
TOLAC	**t**rial **o**f **l**abour **a**fter **c**aesarean section
TTN	**t**ransient **t**achypnoea of the **n**ewborn
TVS	**t**rans**v**aginal **s**can
UK	The **U**nited **K**ingdom
US	The **U**nited **S**tates of America
USS	**u**ltra**s**ound **s**can
VBAC	**v**aginal **b**irth **a**fter **c**aesarean section
VD	**v**aginal **d**elivery
WHO	**W**orld **H**ealth **O**rganisation
95% CI	**95% c**onfidence **i**nterval

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ABSTRACT

Objective

Evaluation of the practice and short term maternal and perinatal outcomes of TOLAC offered to women at ASUMH during the 3-year period from Jan 2013 to Dec 2015.

Study design

Retrospective record-based study.

Results

VBAC rate was 86%. A prior VD, particularly a prior VBAC, and presenting in active labour were significantly associated with a higher rate of success. Lower neonatal birth weight, longer inter-delivery interval and younger maternal age positively influenced the outcome. Hospital-stay was significantly shorter with successful VBAC. Maternal adverse events were more frequent among women who had an unsuccessful TOL, including uterine rupture, blood transfusion and endometritis.

Conclusion

Assessment of individual risks and the likelihood of VBAC is important in determining who are appropriate candidates for TOLAC. If the prerequisites for TOLAC are not available, ERCS is a safer option for delivery.

Keywords: trial of labour, TOLAC, VBAC

STUDY PROTOCOL

Introduction

Since 1985, the international healthcare community has considered the ideal rate for **C**aesarean **S**ection (CS) to be 10–15%. Since then, CS became increasingly common in both developed and developing countries. When medically justified, a CS can effectively prevent maternal and perinatal mortality and morbidity. However, there is no evidence showing the benefits of CS for women or infants who do not require the procedure ***(WHO, 2015)***.

In recent years, there has been widespread public and professional concern about the increasing proportion of CS births and the potential negative consequences for maternal and infant health ***(RCOG, 2007; WHO, 2015)***.

Between 1970 and 2007, the CS rate (defined as the number of CS per 100 live births) in the United States increased dramatically from 5% to more than 31%. This increase was a result of several changes in the practice environment, including the introduction of electronic foetal monitoring and the decrease in use of vaginal breech deliveries and forceps deliveries, which influenced the increase in primary CS rate, and the dictum 'once a caesarean, always a caesarean' has largely permeated the obstetric practice ***(ACOG, 2010)***.

The rising rate of primary CS have led to an increased proportion of the obstetric population who have a history of prior caesarean delivery ***(RCOG, 2007)***. Pregnant women with a CS may be offered either **E**lective **R**epeat **C**aesarean **S**ection (ERCS) or **T**rial **O**f **L**abour **A**fter previous **C**aesarean section (TOLAC), which when successful provides women who desire a vaginal delivery with the possibility of achieving that goal—a **V**aginal **B**irth **A**fter **C**aesarean delivery (VBAC) ***(ACOG, 2010)***. The proportion of women who decline VBAC is, in turn, a significant determinant of overall rates of caesarean birth ***(RCOG, 2007; Guise et al., 2010b)***.

As the annual incidence of CS in the United States increased from less than 5% during the 1970s to 23.5% in 1988, the **N**ational **I**nstitutes of **H**ealth (NIH) and the **W**orld **H**ealth **O**rganization (WHO) held consensus conferences in the 1980s and concluded that CS rates were too high and VBAC was an acceptable approach for reducing these rates ***(Cheng et al., 2011)***.

This change in approach and recommendations favouring TOLAC was reflected in increased VBAC rates (VBAC per 100 women with a prior CS) from just more than 5% in 1985 to 28.3% by 1996, and the overall CS rate decreased to approximately 20% ***(ACOG, 2010)***.

At an individual level, in addition to fulfilling a patient's preference for vaginal delivery, VBAC is associated with decreased maternal morbidity and a decreased risk of complications in future pregnancies. At a population level, VBAC also is associated with a decrease in the overall CS rate ***(ACOG, 2010)***.

A woman's perception of self-efficacy and inability to fulfil family obligations have been cited as reasons for women choosing VBAC rather than ERCS. Patient involvement in decision-making as well as VBAC counselling have also been associated with increased choice for VBAC, in addition to increased patient satisfaction. Conversely, lack of education or discussion with the clinician was associated with ERCS. Studies examining external influences on a woman's choice for VBAC have found that women highly value the opinion of their healthcare provider ***(Guise et al., 2010b)***.

Yet, neither ERCS nor TOLAC is without risks. As the number of women pursuing TOLAC increased, so did the number of reports of uterine scar dehiscence or rupture and associated maternal and/or neonatal morbidity and mortality. In part, these reports, and the professional liability pressures they engendered, have resulted in a reversal of VBAC and CS trends ***(ACOG, 2010; Cheng et al., 2011)***. By 2006, the VBAC rate had decreased to 8.5 % and the total CS rate had increased by more than 50% (from 20.7% in 1996) to 31.1% ***(ACOG, 2010; Guise et al., 2010b)***.

The coupling of this trend with a concomitant increase in the primary CS rate portends a continued escalation in the overall CS rate. Both vaginal delivery and CS hold inherent risks. Thus, mothers and clinicians are confronted with complex decisions and must weigh possible risks and benefits associated with VBAC versus ERCS ***(Guise et al., 2010b)***.