Association Of Demographic Factors On Outcomes Of Trial Of Labour After Cesarean Section: A Retrospective Study Of Women Delivering In A Tertiary Centre

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INTRODUCTION

- Several demographic factors have been identified affecting the success of spontaneous vaginal birth after caesarean section (VBAC).
- Some factors that decrease the likelihood of a successful VBAC include need for labour induction, maternal BMI >/= 30 kg/m², previous dystocia (1), maternal age > 35 (2), and gestational age > 40 weeks (3).
- This review aimed to identify a relationship between demographic factors and the outcome of trial of labour after caesarean in women who were induced compared with those who spontaneously laboured.

REFERENCES

1. Landon MB, Leindecker S, Spong CY, et al. The MFMU Cesarean Registry: factors affecting the success of trial of labor after previous cesarean delivery. Am J Obstet Gynecol. 2005;193(3 Pt 2):1016-1023. doi:10.1016/j.ajog.2005.05.066
2. Bujold E, Hammoud AO, Hendler I, et al. Trial of labor in patients with a previous cesarean section: does maternal age influence the outcome?. Am J Obstet Gynecol. 2004;190(4):1113-1118. doi:10.1016/j.ajog.2003.09.055
3. Coassolo KM, Stamilio DM, Paré E, et al. Safety and efficacy of vaginal birth after cesarean attempts at or beyond 40 weeks of gestation. Obstet Gynecol. 2005;106(4):700-706. doi:10.1097/01.AOG.0000179389.82986.50

METHOD

- A retrospective review of a South Australian tertiary hospital's de-identified perinatal data set.
- Data was extracted from July 2014 to May 2020 for women who were classified as: "Vaginal Birth After Caesarean" (VBAC) defined as women who achieved a normal or assisted vaginal delivery, and; "Trial Of Scar" (TOS) defined as women who required an emergency cesarean in the setting of labour after prior caesarean.
- Within the VBAC and TOS groups, women were further grouped by exposure to induction of labour versus spontaneous labour.
- The women included in the VBAC and TOS groups were deemed comparable in baseline characteristics as per Levene's test of equal variance.
- Groups with the same exposure were compared against the following variables: BMI, maternal age, gestational age, birth weight and post-partum haemorrhage (PPH).
- Independent samples T-Tests and Chi Squared tests were used to assess statistical significance.

RESULTS

- There were 373 deliveries that met the inclusion criteria, of these, 237 (63.5%) women were in the VBAC group and 136 (36.46%) were in the TOS group .
- Fifty-one women (22%) were induced in the VBAC group compared with 43 (32%) in the TOS group.
- For the women in the VBAC group, patients with a higher BMI were more likely to be induced (BMI 28.6 +/- 6.7kg/m² vs. BMI 26.5+/- 6.4kg/m²; p = 0.04).
- There was no significant difference for BMI in women in the TOS group .
- There was no significant difference in maternal age, gestational age and birth weight for women in both groups and exposures (Table 1, Table 2)
- Rates of PPH were 26% for VBAC spontaneous vs 33% for VBAC induced (p=0.22) and 33% for TOS spontaneous vs 44% for TOS induced (p=0.38).

Table 1 - VBAC

	VBAC Spontaneous	Standard Deviation	VBAC Induced	Standard Deviation	p value
Maternal Age (years)	29	5	29.7	5.1	0.36
Gestational age (weeks)	38.8	3.3	38.7	3.1	0.75
BMI (kg/m2)	26.5	6.4	28.6	6.7	0.04
Birth weight (grams)	3296	567	3430	636	0.15

Table 2 - TOS

	TOS Spontaneous	Standard Deviation	TOS Induced	Standard Deviation	p value
Maternal Age (years)	30.2	5	31.1	5.8	0.31
Gestational age (weeks)	39.4	1.5	39.3	1.4	0.66
BMI (kg/m2)	27.1	5.2	29.4	7.6	0.08
Birth weight (grams)	3517	516	3387	539	0.18

DISCUSSION

- Patients achieving a VBAC with a higher BMI were more likely to have undergone an induction of labour.
- The average BMI for both groups achieving a VBAC was <30 kg/m²·. This is in keeping with Landon et al (1).
- Other variables studied in this review were not found to be statistically significant. This may be due to the sample size and baseline cohort characteristics i.e. baseline average maternal age was <35 years.
- This information may be helpful in planning and counselling patients wishing to undergo a VBAC.

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