317:ENHANCING THE QUALITY OF OBSTETRICAL CARE THROUGH EVIDENCE-BASED PRACTICE: THE REDUCTION OF THE RISK OF ADVERSE FETAL OUTCOME IN VAGINAL BIRTHS AFTER CAESAREAN

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Objective:
The comprehensive obstetrical database of a tertiary care facility in London, Ontario, Canada was analysed to determine the fetal risks associated with a vaginal birth in a population of multiparous women with an obstetrical history of one previous caesarean section (C/S) and no other presenting risk factors, and to identify practices that could be altered in an attempt to optimise fetal outcome.

Methods:
An historical analysis of births occurring between November 1, 1995 and November 30, 2002 was conducted. Incidence rates and odds ratios were calculated from 2x2 tables comprised of various fetal outcomes crosstabulated with mode of delivery (vaginal birth vs. Caesarean section) for low risk women without medical, surgical or obstetrical complications who had had a single previous Caesarean. The 95% confidence interval for the odds ratios was calculated to determine the probability that the incidence rates were the same across the two groups.

Multivariate logistic regression analyses were used to calculate the adjusted odds ratio[1] for two adverse outcomes that were significantly associated with mode of birth: arterial pH < 7.15 and arterial base deficit > 12. Logistic regression was also used to identify the strength of the relationship of specific variables (fetal weight, labour type, duration of 2nd stage of labour, augmentation, scar dehiscence and intra-partum non-reassuring fetal heart rate) with the incidence of poor arterial pH and base deficit, in an attempt to explain the finding that the infants of well women giving birth vaginally following a previous caesarean faced significantly higher odds of experiencing these adverse outcomes.

Results:
The dataset yielded 949 low risk[2] cases with 1 previous Caesarean, 633 (66.7%) of whom gave birth vaginally, and 316 (33.3%) of whom gave birth by C/S. Of the latter group, 58.2% had undergone a trial of labour. The adjusted odds ratios of having an infant with an arterial pH < 7.15 or an infant with an arterial base deficit >12, for those giving birth vaginally relative to those giving birth by C/S, when all other independent variables were held constant, were 2.47 (95% C.I. 1.09 – 5.61) and 4.70 (1.09 – 20.31), respectively. In both models, the variable representing mode of birth was significant at $p<.05$.

Separate logistic regression analyses involving 586 vaginal births failed to explain the variation in the incidence of poor arterial pH among infants born vaginally. The presence of non-reassuring fetal heart rate patterns, however, emerged as significantly related to the incidence of arterial base deficit greater than 12 in the study population ($p<.05$).

Conclusions:
Patient counselling for women in our study population has traditionally focussed on the communication of the risk of maternal uterine rupture with haemorrhage and fetal compromise or death. In the interests of patient empowerment, it is important to inform women who have had one previous C/S of all possible risks to the fetus imposed by a vaginal birth.

The key findings from this project have been used to support recommendations for increased vigilance on the part of attending care providers with respect to fetal monitoring during an attempted vaginal birth after a Caesarean, and for further study to support the modification of

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[1] Controlling for: fetal sex; fetal weight; mode of birth; labour type (including whether or not labour was augmented); occurrence of dehiscence of the scar from the previous uterine incision; presence or absence of shoulder dystocia; and occurrence/non-occurrence of intra-partum non-reassuring fetal heart rate patterns.
[2] Vertex, singleton, term, with history of previous Caesarean being the sole risk factor at presentation.

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existing practices, both in terms of patient counselling, and in terms of the clinical care pathway itself for women with one previous caesarean who elect to undergo a trial of labour.

While the findings from these analyses generally support current practice guidelines endorsed by the Society of Obstetricians and Gynaecologists of Canada, they have assisted us in focussing our attention on factors that are amenable to change, and which are expected to lead to increased quality of care. π

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