

Risk Factors for Recurrent Shoulder Dystocia, Washington State 1987-2004

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Objective: To identify risk factors for recurrent shoulder dystocia among women with a history of shoulder dystocia in a previous pregnancy.

Methods: Using birth records and hospital discharge information, consecutive singleton vaginal deliveries to women in Washington State from 1987-2004 were linked using maternal identifiers. Women who had two singleton vaginal deliveries complicated by shoulder dystocia were selected as cases. The control group was randomly selected in a 4:1 ratio from the women who had a primary shoulder dystocia, and at least one subsequent vaginal delivery during the study period, but no recurrence of shoulder dystocia. Women who had a primary shoulder dystocia and delivered subsequent pregnancies by cesarean section were described, but excluded from the analyses. Cases were compared to controls with respect to demographic characteristics and potential risk factors from the index and subsequent pregnancies using logistic regression model, adjusted for maternal age and parity.

Results: We found that 1.29/1,000 vaginal deliveries per year were complicated by shoulder dystocia in Washington state. Of 26,208 women who had a primary shoulder dystocia, 8,991 (34.3%) had a subsequent birth and of these, 1,060 (11.8%) had a second vaginal delivery complicated by shoulder dystocia, 1172 (13%) had a subsequent cesarean section and 6759 (75.2%) had a normal vaginal birth. Annual incidence of recurrent shoulder dystocia among women who attempted a vaginal birth was 7.5/1,000 vaginal deliveries per year. Cases were significantly older and of higher parity than controls. Birth weight in the index pregnancy was significantly associated with an increased risk of subsequent shoulder dystocia with infants weighing 3500 grams or greater (adjusted Odds Ratio (aOR)=1.9, 95% Confidence Interval (CI) 1.5-2.4 for 3500-3999g; aOR=3.5, 95% CI 2.8-4.4 for 4000g-4499g; aOR=3.2, 95% CI 2.3-4.5 for 4500-4999; aOR=4.4, 95% CI 2.1-9.1 for 5000g+). Vacuum delivery in the index delivery was associated with a 50% increase in risk of recurrence (aOR= 1.5, 95% CI 1.3-1.9). Gestational diabetes mellitus and operative delivery in the subsequent pregnancy were not significantly associated with risk of shoulder dystocia.

Conclusions: Among women with a shoulder dystocia who had a subsequent vaginal birth, birth weight and vacuum assistance in the index delivery were strong risk factors for recurrence risk. These factors may be useful in clinical management of women with a shoulder dystocia in a previous pregnancy.

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