

## RISK OF RECURRENCE AND SUBSEQUENT DELIVERY AFTER OBSTETRIC ANAL SPHINCTER INJURIES

### Hypothesis / aims of study

The aim of this study was to assess the recurrence risk of obstetric anal sphincter injuries (OASIS) in second and third delivery and to study the effect of instrumental delivery, inter-delivery interval, maternal age and size of maternity unit on the recurrence of OASIS. We also wanted to estimate the proportion of OASIS cases attributable to a history of OASIS. Finally, we wanted to assess the likelihood of having a further delivery and the mode of subsequent delivery after OASIS.

### Study design, materials and methods

In this population based cohort study, we used data from the Medical Birth registry of Norway, 1967-2004. The study population included 828,864 mothers with singleton, vertex presenting infants weighing 500 g or more. We compared the recurrence risk of OASIS, subsequent delivery rate and planned caesarean rate in women with and without a history of OASIS in second and third deliveries.

### Results

Compared to women with no history of OASIS, women with OASIS in first delivery had 7 fold increased risk of OASIS in the second delivery (adjusted OR = 4.2, 95% CI = 3.9-4.5), and women with OASIS in first and second deliveries had 19 fold increased risk of OASIS in third delivery (adjusted OR = 10.6, 95% CI = 6.2-18.1). Population-attributable risk percentage of OASIS in second and third delivery due to previous OASIS was 10% and 15%, respectively. Instrumental deliveries, in particular forceps deliveries, birth weight 3500 g or more and large maternity units were associated with recurrence of OASIS in second delivery. Instrumental delivery did not further increase the excess recurrence risk associated with birth weight. Maternal age and inter-delivery interval were not associated with the risk of recurrence of OASIS.

The subsequent delivery rate was not different in women with and without previous OASIS, whereas women with previous OASIS were more often scheduled to caesarean delivery.

### Interpretation of results

The recurrence risk of OASIS in second delivery has been investigated previously with conflicting results. The choice of reference group may have caused some of the inconsistency in reported relative risks of recurrence. The recurrence risk of OASIS in third delivery, to our knowledge, has not been investigated previously. Although, the risk of the occurrence of OASIS tends to decrease with vaginal birth order, we generally noted increased recurrence risk of OASIS in birth order two and three.

One may expect that a severe delivery complication such as OASIS would deter a woman from having a subsequent pregnancy. In this study, we found no difference between subsequent delivery rates in women with and without a history of OASIS. However, women with previous OASIS were delivered more frequently with planned caesarean delivery, which has been reported to be associated with increased risk of severe maternal and neonatal morbidity and mortality.

### Concluding message

Women with a history of OASIS have excess risk of the recurrence of OASIS and caesarean delivery in subsequent deliveries. Therefore, emphasis should be placed on counselling women after an initial OASIS and attention should be paid to prevent OASIS in the first delivery.

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<b>Is this a clinical trial?</b>	<b>No</b>
<b>What were the subjects in the study?</b>	<b>HUMAN</b>
<b>Was this study approved by an ethics committee?</b>	<b>Yes</b>
<b>Specify Name of Ethics Committee</b>	<b>The regional committee for medical research ethics approved the study protocol (REK Vest no 247.09).</b>
<b>Was the Declaration of Helsinki followed?</b>	<b>Yes</b>
<b>Was informed consent obtained from the patients?</b>	<b>No</b>