

OBSTETRICAL ANAL SPHINCTER INJURIES (OASIS): DOES OBSTETRICAL CARE PROVIDER MATTER? A QUALITY ASSURANCE STUDY IN ONTARIO.

Hypothesis / aims of study:

Third and fourth-degree perineal lacerations, commonly referred as Obstetrical Anal Sphincter Injuries (OASIS), are perineal tears occurring during childbirth that involve the anal sphincters complex and rectal mucosa. OASIS are associated with significant rates of morbidity including anal incontinence, fecal urgency, and perineal pain post-partum.⁽¹⁾ The primary aim of the study was to determine the rates of OASIS at our tertiary care hospital (TCH) amongst different types of obstetrical care providers and contrast these rates with data from our provincial database.

Study design, materials and methods

This retrospective chart review collected patient, demographic, and delivery data from all vaginal deliveries at TCH from June 1st 2011 to June 1st 2014 and selected delivery information from all vaginal deliveries through the provincial database from June 1st 2012 to June 1st 2014. That database included information on all births in Ontario that occur in hospitals providing maternal-newborn services or are attended at home by a registered Midwife. Since this was a quality assurance project reviewing ALL deliveries, no a priori sample size calculation was performed.

Results

Data was collected from 4305 vaginal deliveries at TCH, and 183,112 vaginal deliveries via provincial database. During this period, 4.6% and 3.5% of all vaginal deliveries at TCH and province-wide respectively were complicated by OASIS. There was no statistically significant difference in rates of OASIS amongst admitting or delivering health care providers at TCH. The provincial rate of OASIS by admitting providers was significantly greater in midwives compared to physicians, but was significantly greater in deliveries performed by obstetricians.

	OASIS n (%) TCH	P value	OASIS n (%) Provincial database	P value
Admitting health care provider*		0.48		<0.0001
Obstetrician	4.3% (119/2779)		3.4% (4804/139822)	
Family Physician	4.9% (50/1020)		3.2% (726/23024)	
Midwife	5.3% (27/506)		4.4% (901/20266)	
Delivering health care provider		0.25		<0.0001
Obstetrician	4.9% (146/2975)		3.8% (5500/143390)	
Family Physician	3.8% (36/953)		2.7% (589/21905)	
Midwife	3.7% (14/377)		3.1% (554/17817)	
Transfer of care				
Family Physician to OBS - Yes	20.9% (14/67)	<0.001	12.2% (137/1119)	<0.0001
- NO	3.8% (36/953)		2.7% (589/21905)	
Midwife to OBS - Yes	10.1% (13/129)	<0.01	14.2% (347/2449)	<0.0001
- NO	3.7% (14/377)		3.1% (554/17817)	

* Women were initially admitted under their primary HCP. All patients admitted under OBS were delivered by OBS. Some women admitted under Family Physicians or Midwives were subsequently delivered by OBS, due to transfer of care. Numbers in the provincial database don't always match due to missing information on the admitting HCP.

At TCH, 6.7% of patients admitted by family physicians and 25.5% of patients admitted by midwives were transferred to obstetricians. The rate of OASIS tears in patients who had an intra-partum transfer of care to an obstetrician at TCH was 13.8%. In comparison, the rate of OASIS was 3.8% in those who remained under their admitting care provider. The relative risk of OASIS in women transferred to an obstetrician compared to those who were admitted and delivered by an obstetrician was 3.2 (95% CI 2.2-4.8, p<0.001): 13.8% (27/196) versus 4.3% (119/2779). Among patients who had an intra-partum transfer of care, and thus were admitted by a family physician or midwife but delivered by an obstetrician, there was a statistically significant higher rate of oxytocin use, episiotomy, prolonged second stage, and instrumental delivery, compared to those delivered by their admitting HCP. In deliveries reported by the provincial database, 4.9% of patients admitted by family physicians and 12.1% admitted by midwives were transferred to obstetrics. The rate of OASIS following transfer to obstetrics reported by the database was 13.6%, significantly higher than 2.9% in those who remained under the family physician or midwife. The relative risk of OASIS in women transferred to an obstetrician compared to those who were admitted and delivered by an obstetrician was 3.9 (95% CI 3.6-4.3, p<0.0001): 13.6% (484/3568) versus 3.4% (4804/139822).

Interpretation of results

At our TCH, neither the admitting nor delivering type of health care provider impacted the rate of OASIS, but in the province-wide data, women admitted under midwifery sustained a greater rate of OASIS compared to other types of health care provider, while delivery by obstetricians carried a greater risk of OASIS.

However, our study showed that patients who had an intra-partum transfer of care to an obstetrician had a statistically and substantially significant increased rate of OASIS, both in local and provincial dataset, with a relative risk of 3.2 and 3.9, respectively, impacting the overall rate of OASIS in obstetricians. In fact, the delivery factors of women who had an intra-partum transfer of care at TCH reveal that there is a clinical and statistical difference between patients who remained under their admitting

care provider and those who were transferred. Compared to women whose care was not transferred, those transferred to the obstetrical service required more oxytocin augmentation and had a higher rate of prolonged second stage, episiotomy, and instrumental delivery, all known risk factors for OASIS.^(2,3)

The fact that women who were cared and delivered by an obstetrician had a similar rate of OASIS than those who were cared and delivered by their family physician or midwife indicates that it is not the obstetrical care per se that increases the risk of OASIS, but rather the labour dysfunction that leads to the transfer. We clearly showed that the patient population who remained under their admitting care provider is different with respect to labour and delivery management than those who required a transfer of care. This likely reflected that the obstetrician was likely consulted for reasons leading to increased intervention need such as: non-reassuring fetal heart rate or failure to progress.

Concluding message

The type of care provider did not greatly impact the rate of OASIS, with rates similar across all providers. Only when an intra-partum transfer of care is needed does the rate substantially increase, reflecting that the underlying indication for transfer leads to more intervention associated with increased risk of OASIS, as shown by the chart review at our TCH.

References

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3. Hehir, Mark P., et al. "Obstetric anal sphincter injury, risk factors and method of delivery—an 8-year analysis across two tertiary referral centers." *The Journal of Maternal-Fetal & Neonatal Medicine* 26.15 (2013): 1514-1516

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