

ANO-RECTAL MALFORMATION

Supporting information

What are the parental risk factors for anorectal malformations (ARM) among neonates?

A 2018 systematic review looking at maternal drug use found consistently increased risks for any anti-asthma medication, and hypnotics and benzodiazepine (Zwink, 2018). In meta-analyses, pooled odds ratios (95% confidence intervals) for any anti-asthma medication, and hypnotics and benzodiazepine were 1.64 (1.22-2.21), and 2.43 (1.03-5.73), respectively.

An international case-control study (Wijers 2013) of 1417 cases identified the following pregnancy-related disorders associated with an increased risk of anorectal malformation: maternal epilepsy (adjusted OR 5.1, 95% CI 1.7-15.6), fertility treatment (adjusted OR 1.3, 95% CI 0.9-1.8), multiple pregnancy (adjusted OR 1.6, 95% CI 1.2-2.1), primiparity (adjusted OR 1.6, 95% CI 1.4-1.8), pre-eclampsia (adjusted OR 2.2, 95% CI 1.2-4.0) and maternal fever (adjusted OR 2.2, 95% CI 0.8-5.7).

A case-control study (Kallen 2014) looking at maternal hypothyroidism and a range of congenital malformations found a positive association with anorectal malformation (adjusted OR 1.85, 95% CI 1.00-1.85). This study was based on 588 cases of anorectal malformation.

A systematic review of 22 international studies (Zwink 2011) found that although evidence on risk factors for ARM was limited the few available studies indicate paternal smoking and maternal overweight, obesity and diabetes to be associated with increased risks. This review recommended that further, ideally large-scale multicentre and register-based studies are required to clarify the role of key risk factors for the development of ARM.

Kallen B, Norstedt Wikner B. Maternal hypothyroidism in early pregnancy and infant structural congenital malformations. *J Thyroid Res* 2014; 2014:Epub
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3972937/>

Wijers CH, van Rooij IA, Bakker MK. Anorectal malformations and pregnancy-related disorders: a registry-based case-control study in 17 European regions. *BJOG* 2013; 120;1066-74
<http://onlinelibrary.wiley.com/doi/10.1111/1471-0528.12235/full>

Zwink N, Jenetzky E and Brenner H. Parental risk factors and anorectal malformations: systematic review and meta-analysis *Orphanet Journal of Rare Diseases* 2011; 6: 1-17.
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Evidence Level III

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