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## Opioid-induced respiratory depression: ABCB1 transporter pharmacogenetics.

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#### Abstract

Opioid-related respiratory depression (RD) is a serious clinical problem as it causes multiple deaths and anoxic brain injuries. Morphine is subject to efflux via P-glycoprotein transporter encoded by ABCB1, also known as MDR1. ABCB1 polymorphisms may affect blood-brain barrier transport of morphine and therefore individual response to its central analgesic and adverse effects. This study aimed to determine specific associations between common ABCB1 genetic variants and clinically important outcomes including RD and RD resulting in prolonged stay in hospital with intravenous morphine in a homogenous pediatric surgical pain population of 263 children undergoing tonsillectomy. Children with GG and GA genotypes of ABCB1 polymorphism rs9282564 had higher risks of RD resulting in prolonged hospital stays; adding one copy of the minor allele (G) increased the odds of prolonged hospital stay due to postoperative RD by 4.7-fold (95% confidence interval: 2.1-10.8, P=0.0002).

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