



Short- and Long-Term Consequences of CO₂ Pneumoperitoneum Impact on Children's Health

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We read with great interest the article by Kılınc et al¹ and we congratulate the authors for a well-designed prospective, observational study. The authors perioperatively monitored the regional splanchnic saturation (rSPcO₂), regional cerebral oxygen saturation (rScO₂), peripheral oxygen saturation (SpO₂), end-tidal CO₂ (Et-CO₂), heart rate, mean arterial pressure, and CO₂ insufflation pressure (IP) during laparoscopic surgery in children. An increased Et-CO₂ was associated with decreased regional oxygen saturation parameters (rSPcO₂ and rScO₂) during laparoscopic surgery with CO₂ pneumoperitoneum. We also observed analogously increased Et-CO₂ in children during laparoscopic surgery² associated with slight blood gas values and acid-base balance changes, associated with decreased skin temperature and urine output. We also found increased concentrations of pCO₂ in the carotid venous and peripheral ear arterial blood with increased venous-to-arterial differences of CO₂ tension with lower pH and tissue acidosis during CO₂ pneumoperitoneum in the rabbit model.³ These experimental results are certainly meaningful for paediatric surgery as there is a correlation among this model to physiological changes in children and therefore decreased regional oxygen saturation might be associated with increased CO₂ concentrations with lower pH and tissue acidosis in these regions. We believe that such decreased regional oxygen saturation in different locations is an important outcome of this study,¹ and all these changes are the only short-term impact of CO₂ pneumoperitoneum. Possible future consequences of decreased cerebral oxygen saturation and tissue acidosis might influence postoperative cognitive function.⁴ Risk factors of this condition in relation to laparoscopic surgery and general anaesthesia have been extensively studied.⁵⁻⁷ Short-term changes related to CO₂ pneumoperitoneum during laparoscopic surgery are well documented these days although its long-term consequences remaining unknown. Children and adults are vulnerable to post-surgical complications. It is very difficult to learn the postoperative cognitive function in paediatric patients; therefore, further observations of children after such surgical treatment are needed to study the long-term consequences of CO₂ pneumoperitoneum and general anaesthesia.

Declaration of Interests: The authors have no conflict of interest to declare.

Editor's Note: Despite the repeated e-mails, no answer received from Kılınc et al.¹



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