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Autor(en) des Beitrags: von Delius, S; Schorn, A; Grimm, M; Schneider, A; Wilhelm, D; Schuster, T; Stangassinger, M; Feussner, H; Schmid, RM; Meining, A

Titel des Beitrags: Natural-orifice transluminal endoscopic surgery: low-pressure pneumoperitoneum is sufficient and is associated with an improved cardiopulmonary response (PressurePig Study).

Abstract: The aim of this randomized trial in the acute porcine model was to compare the quality of transgastric peritoneoscopy with the use of low-pressure versus standard-pressure pneumoperitoneum and to evaluate the respective associated cardiopulmonary changes. For transgastric peritoneoscopy, carbon dioxide was insufflated via the endoscope for a constant intraperitoneal pressure of 6 mmHg or 12 mmHg in 9 pigs each. The quality of transgastric peritoneoscopy was rated on a visual analog scale (0 mm, min.; 100 mm, max.) by the endoscopist, who was blinded to the intraperitoneal pressure. The cardiac index and global end-diastolic volume index (GEDVI, reflecting preload) were measured every 3 minutes by transpulmonary thermodilution. The following were also recorded: heart rate, mean arterial pressure (MAP), systemic vascular resistance index (SVRI, reflecting afterload), peak inspiratory pressure (PIP), pH, PCO (2), and PO (2). The quality of transgastric peritoneoscopy with the use of low-pressure pneumoperitoneum was not inferior to that obtained using standard-pressure pneumoperitoneum (87.0 mm vs. 87.3 mm; P<0.05). In both groups we observed a statistically significant rise in MAP and...
SVRI. The increase in SVRI was less pronounced during low-pressure peritoneum (P=0.042), indicating a reduced stress response in comparison to standard-pressure peritoneum. There were no relevant differences between the groups in relation to cardiac index, GEDVI, and heart rate. An intra-abdominal pressure of 6 mmHg also led to better oxygenation (P=0.031 for difference in PO(2) between the two groups) due to lower peak inspiratory pressure (P<0.001 for difference). There were only slight differences between the groups with regard to pH and PCO(2). Pneumoperitoneum of 12-16 mmHg is used for standard laparoscopy. For NOTES, low-pressure pneumoperitoneum is sufficient and is associated with an improved cardiopulmonary response compared to standard-pressure pneumoperitoneum.