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Abstract: STUDY OBJECTIVE: To compare 5 laparoscopic insufflators with different gas flow rates with regard to accuracy of preset pressure setting versus real intraoperative intraabdominal pressure. DESIGN: Prospective study (Canadian Task Force classification II-2). SETTING: Fayette Medical Center, Alabama. PATIENTS: Five patients undergoing laparoscopic cholecystectomy. INTERVENTIONS: Intraoperative intraabdominal and system pressure measurements during comparable laparoscopic procedures. MEASUREMENTS AND MAIN RESULTS: Actual intraabdominal pressure was measured and compared between 5 different 10 to 20 L/min insufflators (Storz Laparoflator and Endoflator, Richard Wolf, BEI Medical and Snowden& Pencer) with a computer-based online data acquisition system. At a nominal pressure of 10 mm Hg, the mean intraabdominal pressure during the entire procedure was measured to be between 9.68 and 11.45 mm Hg. The mean intraabdominal pressure during laparoscopy for the insufflators showed a margin of error of 14.5%, with maximum intraabdominal pressure peaks measured between 14.65 and 17.87 mm Hg. CONCLUSIONS: Within an error margin of<15% of the preset intraabdominal pressure setting, the insufflators evaluated can be considered pressure reliable. Although intraabdominal pressure peaks exceeding the nominal pressure temporarily reached up to 78.7% of
the setting, no apparent complications were observed. Excessive pressure peaks seen in the previous reported laboratory model could not be confirmed during in vivo application.