

Korelasi nilai indeks resistensi dan indeks pulsatilitas ginjal terhadap tekanan intraabdomen saat insuflasi CO₂ intralaparoskopi = Correlation of renal resistive index and pulsatility index with intraabdominal pressure during CO₂ insufflation intralaparoscopy.

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Abstrak

Latar Belakang: Peningkatan tekanan intraabdomen dapat menurunkan perfusi berbagai sistem organ, terutama organ intraabdomen dengan vaskularisasi tinggi seperti ginjal. Indeks resistensi RI dan indeks pulsatilitas PI ginjal adalah parameter kuantitatif ultrasonografi USG Doppler yang mengukur derajat resistensi atau impedansi aliran darah dan dapat berperan sebagai indikator perfusi ginjal. Dalam kepustakaan masih belum terdapat data nilai korelasi antara RI dan PI ginjal terhadap tekanan intraabdomen melalui insuflasi CO₂ pada subjek manusia.

Tujuan: Mengetahui korelasi antara nilai RI dan PI ginjal dengan tekanan intraabdomen.

Metode: Desain penelitian merupakan potong lintang dan menggunakan data sekunder. Sampel berjumlah 36 data pasien yang telah menjalani laparotomi nefrektomi donor ginjal hidup di RSUPN Cipto Mangunkusumo RSCM dan RSCM Kencana periode Agustus 2017 hingga Januari 2018. Data pengukuran tekanan intraabdomen (mmHg), RI dan PI ginjal intraoperatif baik sebelum insuflasi baseline maupun saat insuflasi CO₂ didapatkan dari rekam medik dan laporan operasi.

Hasil: Setiap subjek mendapatkan tekanan insuflasi CO₂ yang berbeda, dengan nilai tekanan antara 8, 9, 10, 12, 13 atau 14 mmHg saat laparotomi. Terdapat perbedaan bermakna ($p < 0,001$) antara rerata nilai RI dan PI ginjal baseline (0,574 dan 0,951) dibandingkan rerata RI dan PI ginjal saat insuflasi CO₂ (0,660 dan 1,188). Namun tidak didapatkan adanya korelasi maupun kemaknaan secara statistik antara tekanan intraabdomen terhadap RI ginjal ($r = 0,16$ dan $p = 0,349$) ataupun PI ginjal ($r = 0,14$ dan $p = 0,429$) saat dilakukan insuflasi CO₂.

Kesimpulan: Tidak terdapat korelasi antara RI maupun PI ginjal dengan tekanan intraabdomen saat dilakukan insuflasi CO₂ intralaparoskopi.

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Background: Increased intraabdominal pressure may decrease perfusion of various organ systems, especially intraabdominal organs with high vascularization such as kidney. The renal resistance index RI and pulsatility index PI are Doppler ultrasound US quantitative parameters which measure degree of blood flow resistance or impedance and may act as indicators of renal perfusion. Amongst literature yet there is still no data of correlation between renal RI and PI with intraabdominal pressure during CO₂ insufflation on human subject.

Purpose: To evaluate correlation between renal RI-PI value and intraabdominal pressure.

Method: The study design is cross sectional and utilize secondary data. Thirty six samples of renal donor patients data who had undergone laparoscopic nephrectomy procedure in Cipto Mangunkusumo National General Hospital RSCM and RSCM Kencana hospital were acquired from August 2017 to January 2018. Intraoperative measurements data of intraabdominal pressure (mmHg), renal RI and PI, both before baseline and during CO₂ insufflation were obtained from medical records and surgery reports.

Results: Each subject received a different CO₂ insufflation pressure, with a pressure value either 8, 9, 10, 12, 13 or 14 mmHg during laparoscopy. There was a significant difference ($p < 0.001$) between mean of baseline renal RI and PI (0.574 and 0.951) compared to mean renal RI and PI during CO₂ insufflation (0.660 and 1.188). There was no correlation between intraabdominal pressure with renal RI ($r = 0.16$ and $p = 0.349$) or renal PI ($r = 0.14$ and $p = 0.429$) during CO₂ insufflation.

Conclusion: There was no correlation between renal RI or PI with intraabdominal pressure during CO₂ insufflation intralaparoscopy.