

Indeks Distensibilitas Vena Jugularis Interna sebagai Prediktor Respons terhadap Pemberian Cairan pada Pasien Pembedahan Elektif = Internal Jugular Vein Distensibility Index as Predictor of Fluid Responsiveness in Patient Undergoing Elective Surgery

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Abstrak

Latar belakang. Pada pasien yang menjalani pembedahan, penilaian volume intravaskular sangat penting dan prediksi respons terhadap pemberian cairan seringkali tidak mudah. Terdapat peningkatan signifikan resiko morbiditas dan mortalitas pascaoperasi pada pemberian cairan yang restriktif dan liberal. Evaluasi indeks distensibilitas vena jugularis interna merupakan alternatif untuk menentukan status volume intravaskular karena kemudahan akses dan visualisasi dengan ultrasonografi. Penelitian ini bertujuan untuk mengetahui kesesuaian metode pengukuran indeks distensibilitas vena jugularis interna dengan pengukuran isi sekuncup dengan ekokardiografi Doppler transtorakal dalam penilaian respons terhadap pemberian cairan pada pasien pembedahan elektif.

Metode. Penelitian ini merupakan uji diagnostik dengan rancangan penelitian potong lintang dan melibatkan 79 subyek yang menjalani pembedahan elektif di RSCM dengan anestesia umum. Pascainduksi anestesia, pengukuran indeks distensibilitas vena jugularis interna dan isi sekuncup dengan ekokardiografi transtorakal dilakukan sebelum dan sesudah pemberian cairan. Subyek yang mengalami peningkatan isi sekuncup lebih dari 10% dikategorikan sebagai responder. Data kemudian dianalisis untuk menilai kesesuaian variabel dalam prediksi respons terhadap pemberian cairan.

Hasil. Sebanyak 45 subyek (57%) merupakan responder. Berdasarkan analisis kurva ROC indeks distensibilitas vena jugularis interna terhadap respons pemberian cairan, nilai AUC didapatkan sebesar 0,871 (95% CI: 0,790–0,951). Nilai ambang batas optimal didapatkan pada nilai indeks distensibilitas >12,62% dengan sensitivitas 84,4% dan spesifisitas 79,4%.

Simpulan. Metode pengukuran indeks distensibilitas vena jugularis interna memiliki kesesuaian dengan pengukuran isi sekuncup melalui ekokardiografi Doppler transtorakal dalam penilaian respons terhadap pemberian cairan pada pasien pembedahan elektif.

.....Background. In patients undergoing surgery, the assessment of intravascular volume is crucial, and predicting fluid responsiveness is often uneasy. There is a significant increase in postoperative morbidity and mortality risks associated with both restrictive and liberal fluid administration. Evaluating the internal jugular vein distensibility index is an alternative method to determine intravascular volume status due to its ease of access and visualization using ultrasonography. This study aims to determine the correlation between the measurement of the internal jugular vein distensibility index and the measurement of stroke volume using transthoracic Doppler echocardiography in assessing fluid responsiveness of patients undergoing elective surgery.

Methods. This study is a diagnostic test with a cross-sectional design involving 79 subjects undergoing elective surgery under general anesthesia at RSCM. After anesthesia induction, measurements of the internal jugular vein distensibility index and stroke volume using transthoracic echocardiography were performed before and after fluid administration. Subjects experiencing an increase in stroke volume of more than 10% were categorized as responders. The data were then analyzed to assess the suitability of variables in predicting fluid responsiveness.

Results. A total of 45 subjects (57%) were responders. Based on the ROC curve analysis of the internal jugular vein distensibility index in relation to fluid responsiveness, an AUC value of 0.871 (95% CI: 0.790–0.951) was obtained. The optimal cut-off value was found at an internal jugular vein distensibility index >12.62% with a sensitivity of 84.4% and specificity of 79.4%.

Conclusion. Internal jugular vein distensibility index correlates with the measurement of stroke volume using transthoracic Doppler echocardiography in assessing fluid responsiveness in elective surgery patients.