

INTISARI

Kesepakatan antar penilai ultrasound cardiac output monitoring di instalasi rawat intensif anak

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Latar Belakang. USCOM digunakan untuk pemantauan hemodinamik non-invasif di instalasi rawat intensif anak (IRIA). Walaupun USCOM mudah digunakan, perlu penilaian reliabilitas USCOM operator pemula. Penelitian ini bertujuan mengetahui kesepakatan antar penilai USCOM antara dokter konsultan emergensi dan rawat intensif anak (ERIA) dengan residen ilmu kesehatan anak (IKA) di IRIA.

Metode. Penelitian potong lintang dilakukan di IRIA RS Dr.Sardjito periode Februari-April 2018. Pasien 1 bulan - 18 tahun diambil dengan consecutive sampling. USCOM trans-aorta berpasangan dilakukan oleh satu dokter konsultan ERIA dengan salah satu dari dua residen IKA terlatih yang dipilih dengan undian. Pemeriksaan dilakukan pada pasien yang sama, dengan jeda antar pemeriksaan \leq 15 menit. Kedua penilai dibutakan terhadap hasil pasangannya. Cardiac index (CI), stroke volume index (SVI), dan systemic vascular resistance index (SVRI) beserta kategorinya dicatat. Korelasi dinilai dengan korelasi Pearson atau Spearman's Rank. Kesepakatan antar penilai dinilai dengan Cohen's kappa.

Hasil. Dilakukan 48 pemeriksaan USCOM berpasangan dengan median (min-maks) umur subyek 2 tahun (1 bulan-17 tahun). Kelainan neurologis menjadi diagnosis utama terbanyak (50%). Didapatkan korelasi positif yang kuat pada hasil Spearman's Rank CI ($r_s = 0,77$; 95% IK = 0,62-0,86). Korelasi positif yang sangat kuat ditemukan pada uji korelasi Pearson untuk SVI ($p=0,90$, 95% IK 0,83-0,94) dan SVRI ($p=0,87$, 95% IK 0,78-0,92). Kesepakatan antar penilai menunjukkan kesepakatan yang baik pada CI ($\kappa=0,78$), SVI ($\kappa=0,78$) dan SVRI ($\kappa=0,73$).

Kesimpulan. Pemeriksaan USCOM oleh dokter konsultan ERIA dan residen IKA di IRIA memberikan kesepakatan antar penilai yang baik pada parameter CI, SVI dan SVRI.

Kata Kunci. USCOM, *cardiac index*, *stroke volume index*, *systemic vascular resistance index*.

ABSTRACT

Ultrasound Cardiac Output Monitor (USCOM) inter-rater agreement in Pediatric Intensive Care Unit (PICU)

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Background. USCOM is utilized in PICU for non-invasive hemodynamic monitoring. Although USCOM is relatively simple to operate, it's reliability needs to be assessed, especially for the novice user.

Objective. To measure inter-rater agreement of USCOM measurement between pediatric intensivist and resident in PICU.

Method. A cross-sectional study was conducted in PICU during February-April 2018. Patient 1 month – 18 years old were recruited with consecutive sampling. Trans-aortic USCOM examination was performed by one pediatric intensivist paired with one of two trained pediatric resident that selected by simple random sampling. Paired USCOM examination was performed on the same patient within 15 minutes of each other. Raters were blinded to each other. *Cardiac index* (CI), *stroke volume index* (SVI), and *systemic vascular resistance index* (SVRI) and it's categorization were recorded. Pearson's correlation, Spearman's rank, and Cohen's kappa were measured for CI, SVI, and SVRI.

Result. Forty-eight paired measurements were performed. Median (minimum-maximum) patients age were 2 years (1 months-17 years). The majority were having a neurological disease (50%). Paired measurement showed strong positive correlation on Spearman's rank for CI ($r_s = 0.77$; 95% CI = 0.62-0.86), very strong positive correlation for SVI ($\rho=0.90$, 95% CI 0.83-0.94) and SVRI ($\rho=0.87$, 95% CI 0.78-0.92). Interrater agreement using Cohen's kappa demonstrates substantial agreement on CI ($\kappa=0.78$), SVI ($\kappa=0.78$), and SVRI ($\kappa=0.73$).

Conclusion. USCOM measurement by pediatric intensivist and resident showed substantial inter-rater agreement on CI, SVI, and SVRI.

Keyword. USCOM, *cardiac index*, *stroke volume index*, *systemic vascular resistance index*.