

## Perubahan indeks curah jantung dan pasokan oksigen pada anak renjatan sepsis pasca-bolus cairan = Cardiac index and delivery oxygen change after fluid bolus therapy in pediatric septic shock

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### Abstrak

Latar belakang: Sepsis merupakan penyebab kematian dan kesakitan utama di unit perawatan intensif anak. Pemberian bolus cairan masih menjadi pilihan utama dalam mengatasi renjatan sepsis dan digunakan pada panduan tata laksana internasional. Terapi bolus cairan bertujuan memperbaiki pasokan oksigen dengan meningkatkan curah jantung. Bukti yang mendukung panduan tersebut sangat terbatas sehingga menimbulkan kontroversi.

Tujuan: Menilai perubahan pasokan oksigen, indeks curah jantung dan hemoglobin pada anak renjatan sepsis yang mendapat bolus cairan saat resusitasi.

Metode: Penelitian observasional terhadap 35 subyek dari Februari-Mei 2019 di unit perawatan intensif anak Rumah Sakit Cipto Mangunkusumo (RSCM), Rumah Sakit Umum Daerah (RSUD) Tarakan dan Pasar Rebo Jakarta. Subyek dipilih secara consecutive sampling dan ditata laksana sampai selesai sesuai prosedur yang berlaku.

Hasil: Terdapat 23 dari 35 subyek yang mendapat cairan bolus sampai 40 mL/kg dan 12 subyek hanya mendapat 20 mL/kg. Tidak terdapat perubahan indeks curah jantung dan pasokan oksigen sebelum dan sesudah pemberian cairan bolus ( $p=0,235$  dan  $p=0,340$ ). Terdapat perubahan kadar Hb setelah pemberian cairan bolus ( $p=0,002$ ).

Simpulan: Penurunan kadar hemoglobin terjadi setelah pemberian cairan bolus tetapi tidak terbukti menyebabkan perubahan indeks curah jantung dan pasokan oksigen pada penelitian ini.

.....Background: Sepsis is a leading cause of morbidity and mortality in children with a worldwide prevalence in pediatric intensive care units. Fluid bolus (FB) is a first line therapy for resuscitation of septic shock and has been recommended in international guidelines. FB aimed to increase delivery oxygen with increasing cardiac output. The supporting evidence based are still limited and controversy.

Objective: To evaluate the changing of delivery oxygen ( $DO_2$ ), cardiac index (CI) and hemoglobin (Hb) in pediatric septic shock after fluid bolus in resuscitation.

Methods: An observational study of 35 subject that conducted from February till May 2019 in Pediatric Intensive Care Unit (PICU) Rumah Sakit Cipto Mangunkusumo (RSCM), Rumah Sakit Umum Daerah (RSUD) Tarakan and Pasar Rebo Jakarta. The selection of subject with inclusion criteria through consecutive sampling and managed according to standard operating procedure.

Result: There were 23 from 35 subject got 40 mL/kg and 12 subject got 20 mL/kg fluid bolus only. There were no changing of  $DO_2$  and CI after FB ( $p=0.235$ ;  $p=0.340$ ) then there was changing of hemoglobin after FB ( $p=0.002$ ).

Conclusion: Hemoglobin decreases after FB without change of CI and  $DO_2$  can be proved in this study.