

Korelasi antara Balans Cairan Positif dengan Skor Venous Excess Ultrasound dan Lung Ultrasound pada Anak Sakit Kritis dengan Kelebihan Cairan = The Correlation between Positive Fluid Balance and Venous Excess Ultrasound and Lung Ultrasound Score in Critically Ill Children with Fluid Overload

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Abstrak

Latar Belakang: Anak sakit kritis berisiko mengalami kelebihan cairan akibat terapi cairan inadekuat. Venous excess ultrasound (VExUS), suatu point of care ultrasound (POCUS), dapat digunakan pada kongesti sistemik akibat kelebihan cairan. Terdapat 5 kelas skor VExUS yaitu VExUS A, B, C, D, dan E. Kelebihan cairan pada organ paru dievaluasi dengan lung ultrasound (LUS). Kelebihan cairan sering dihubungkan dengan balans cairan positif. Tujuan: Mengetahui korelasi antara balans cairan positif dengan skor VExUS dan LUS. Metode: Penelitian potong lintang melibatkan anak sakit kritis berusia 1 bulan hingga 18 tahun, mengalami balans cairan positif pada perawatan 24 jam pertama di PICU RSUPN Dr. Cipto Mangunkusumo selama November hingga Desember 2024. Analisis korelasi dilakukan terhadap skor VExUS dan LUS dengan balans cairan positif serta tanda klinis. Hasil: Pada 40 anak sakit kritis, tidak terbukti ada korelasi antara skor VExUS dan LUS dengan balans cairan positif. Hasil tambahan penelitian menunjukkan korelasi antara VExUS A dengan ronki ($r=0,367$, $p=0,020$), VExUS B dengan ronki ($r=0,367$, $p=0,020$), dan VExUS D dengan edema ($r = 0,328$, $p = 0,039$). Simpulan: Skor VExUS dan LUS tidak terbukti berkorelasi dengan balans cairan positif. VExUS A, B, dan D berkorelasi dengan ronki dan edema pada anak sakit kritis dengan kelebihan cairan.

.....Background: Critically ill children were at risk of fluid overload due to inadequate fluid therapy. Venous excess ultrasound (VExUS), a point of care ultrasound (POCUS), was used in systemic congestion due to fluid overload. There were 5 classes of VExUS scoring system (VExUS A, B, C, D, and E). Fluid overload in lung can be evaluated by lung ultrasound (LUS). Fluid overload was also referred to positive fluid balance. Objective: To obtain correlation between positive fluid balance with VExUS and LUS score. Methods: Cross section study on critically ill children aged 1 month to 18 years old, with positive fluid balance during first 24 hour admission to PICU RSUPN Dr. Cipto Mangunkusumo, in November to December 2024. Correlation analysis were done between VExUS and LUS score, as well as the clinical signs. Results: Among 40 critically ill children, there were no correlation between VExUS and LUS score with positive fluid balance. Positive correlations were obtained between VExUS A with ronchi ($r=0.367$, $p=0.020$), VExUS B with ronchi ($r=0.367$, $p=0.020$), VExUS D with edema ($r = 0.347$, $p = 0.028$). Conclusion: VExUS and LUS score was not correlated with positive fluid balance. VExUS A, B, dan D scoring system were correlated with ronchi and edema in critically ill children with fluid overload.