

Efek pemberian asam askorbat intravena pada pasien sepsis dan syok sepsis terhadap fungsi ginjal: kadar urin neutrophil gelatinase associated lipocalin (uNGAL), produksi urin dan balans kumulatif = Effect of intravenous ascorbic acid among septic patients on kidney function: urine neutrophil gelatinase associated lipocalin (uNGAL), urine output, cumulative fluid balance

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Abstrak

Latar Belakang. Mortalitas akibat sepsis di ICU masih cukup tinggi meskipun telah semakin cepatnya diagnosis dan perbaikan perawatan suportif dan angkanya semakin meningkat dengan insiden acute kidney injury yang merupakan bagian dari disfungsi organ akibat sepsis. Asam askorbat dikatakan dapat memperbaiki disfungsi organ disebabkan efeknya yang sinergis terhadap patofisiologi sepsis. Peranan asam askorbat dalam menurunkan disfungsi organ masih kontroversial. Penelitian ini ingin menganalisis efek pemberian asam askorbat intravena terhadap perbaikan fungsi ginjal pada pasien sepsis/ syok sepsis yaitu dengan melihat efek terhadap kadar urin neutrophil gelatinase associated lipocalin (uNGAL), produksi urin dan balans kumulatif.

Metodologi. Penelitian ini merupakan penelitian uji klinis dengan desain penelitian uji acak terkontrol, dilakukan pada pasien usia > 18 tahun dengan sepsis berdasarkan kriteria sepsis-3 yang masuk ICU dalam 6 sampai 24 jam pascareusitasi setelah diagnosis sepsis. Kriteria penolakan yaitu pasien dengan gangguan ginjal kronik dengan hemodialisis, kelainan batu ginjal, dengan masalah ginjal dalam 3 bulan terakhir. Pasien akan dikeluarkan apabila diberikan kortikosteroid dan mendapatkan terapi pengganti ginjal dalam < 72 jam observasi. Penelitian dilakukan di ICU Rumah Sakit Umum Pusat Nasional Cipto Mangunkusumo pada April 2019-Juli 2019. Sebanyak 33 sampel dirandomisasi secara randomisasi sederhana dan dikelompokkan menjadi kelompok perlakuan (18 sampel) dan kontrol (15 sampel). Data demografik dasar dicatat saat masuk ICU. NGAL urin (ng/mL) diperiksa pada jam 0, 24, 48 dan 72 setelah terapi. Produksi urin (ml/kg/jam) dan balan kumulatif (L) dicatat pada jam 24, 48 dan 72 setelah terapi. Analisis statistik dengan uji Mann Whitney untuk data numerik dengan persebaran tidak normal, uji T independen untuk data dengan persebaran normal dan uji Fisher untuk data kategorik perbandingan antara kedua kelompok intervensi. Analisis multivariat untuk pengukuran serial menggunakan generalized estimating equations (GEE) untuk membandingkan antara kedua kelompok dalam waktu pengukuran yang berulang. Nilai signifikansi dengan nilai $p < 0,05$.

Hasil. Tidak terdapat perbedaan pada kadar NGAL urin, produksi urin, balans kumulatif antara dua kelompok di setiap jamnya.

Kesimpulan. Pada penelitian ini pemberian asam askorbat intravena tidak mempunyai efek terhadap kadar NGAL urin, produksi urin, balans kumulatif.

.....Background. Sepsis-related mortality in intensive care unit (ICU) remains despite improved diagnostic technology and supportive treatment. Acute kidney injury, one of frequent organ dysfunctions in sepsis, increases risk of mortality. Ascorbic acid could improve organ dysfunction because its direct effect on sepsis pathophysiology. The role of ascorbic acid on improving organ dysfunction remains controversial. This

study wished to analyze the effects of intravenous ascorbic acid on kidney function improvement among septic patients by evaluating urine neutrophil gelatinase associated lipocalin (uNGAL), urine output and cumulative fluid balance.

Method. This study was randomized controlled trial held in Cipto Mangunkusumo Hospital from April to July 2019. The inclusion criteria were adult patients aged > 18 years who met sepsis-3 criteria and were admitted to the ICU within 6-24 h after resuscitation and sepsis recognition. The exclusion criteria were patients with hemodialysis-dependent chronic kidney disease, kidney stones or other kidney problems within last 3 months. The drop out criteria were patients underwent renal replacement therapy in the ICU and given corticosteroid less than 72 h after recruitment. Subjects were randomized using simple randomization and divided into two groups with treatment (18 subjects) and control (15 subjects). Baseline demographic data was recorded on the first day. Daily measurements of urine NGAL (ng/ mL) was started as baseline level and continued at 24, 48 and 72 h after treatment. Urine output (ml/kg/h), cumulative fluid balance (L) was recorded at at 24, 48 and 72 h after treatment. Comparison between both groups was analysed by using Mann Whitney test (not normally distributed data), T independent test (normally distributed data) for numerical data and Fisher test for categorical data. Multivariate analysis using generalized estimating equations was used for serial measurement analysis. Level of significant was determined at p-value <0.05.

Result. There were no significant differences in uNGAL, urine output, cumulative fluid balance between the two groups at each hour respectively.

Conclusion. This study showed that intravenous vitamin CMultin administration had no effect on urine NGAL, urine output, cumulative fluid balance.