

# Pengaruh pemberian asam askorbat 6 gram terhadap perubahan kadar interleukin-6, C-reactive protein dan skor sofa pada pasien sepsis dan syok sepsis di ruang perawatan intensif = Effect of the administration of 6 grams of ascorbic acid towards the changes of interleukin-6 levels, C-reactive protein levels, and sofa scores in septic and septic shock patients in intensive care unit

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## Abstrak

**Latar Belakang.** Pasien yang mengalami sepsis dan syok sepsis akan mengalami disfungsi organ akibat reaksi radikal bebas dengan sel endotel mikrovaskular sehingga menyebabkan tingkat morbiditas dan mortalitas yang cukup tinggi. Kondisi disfungsi organ dapat diukur melalui perubahan kadar Interleukin-6 (IL-6), C-Reactive Protein (CRP), dan skor Sequential Organ Failure Assessment (SOFA) yang terjadi pada pasien-pasien tersebut. Pemberian asam askorbat yang memiliki kemampuan sebagai free radical scavenging, diharapkan dapat menurunkan proses peradangan atau inflamasi sehingga terjadi perbaikan fungsi organ. Penelitian ini bertujuan untuk mengetahui peran pemberian asam askorbat 6 gram secara intravena terhadap perubahan kadar IL-6, CRP, dan skor SOFA pada pasien sepsis dan syok sepsis di ruang perawatan intensif.

**Metodologi.** Penelitian ini merupakan uji klinis dengan desain uji acak terkontrol, tersamar tunggal yang dilakukan terhadap pasien usia 18-65 tahun dengan diagnosis sepsis atau syok sepsis dalam perawatan 24 jam pertama masuk intensive care unit (ICU) RSUPN Dr. Cipto Mangunkusumo-Jakarta dan ICU RSUP H. Adam Malik-Medan sejak bulan Juli sampai dengan Desember 2019. Sebanyak 49 subyek dirandomisasi menjadi dua kelompok. Kelompok perlakuan (n=23), yang menerima vitamin C 1,5 gram per 6 jam selama 3 hari, dan kelompok kontrol (n=26), yang tidak menerima vitamin C tersebut. Pemeriksaan kadar IL-6, kadar CRP, dan skor SOFA dilakukan pada jam ke-24, 48, dan 72.

**Hasil.** Tidak terdapat perubahan bermakna pada kadar IL-6 (P=0,423), CRP (P=0,080), dan skor SOFA (P=0,809) antara kelompok kontrol dan kelompok perlakuan.

**Kesimpulan.** Pemberian asam askorbat 6 gram secara intravena tidak memberikan perubahan bermakna terhadap kadar IL-6, CRP, dan skor SOFA pada pasien sepsis dan syok sepsis di ruang perawatan intensif.

.....**Background.** Septic and septic shock patients will have organ dysfunctions due to free radical reaction with microvascular endothelial cells, thus morbidity and mortality rate will increase in these conditions.

Those organ dysfunctions can be measured through the changes of Interleukin-6 (IL-6) levels, C-Reactive Protein (CRP) levels, and Sequential Organ Failure Assessment (SOFA) scores. The administration of ascorbic acid has a feature known as free radical scavenging. The feature is expected to reduce the inflammatory rate in the organs and to improve the functions. This study was aimed to analyze the intravenous administration effect of 6 grams of ascorbic acid towards the changes of Interleukin-6 levels, C-Reactive Protein levels, and SOFA scores in septic and septic shock patients in intensive care unit

**Methods.** This was a single blind randomized controlled clinical trial study on patients aged 18-65 years old with septic and septic shock conditions in the first 24 hour care in intensive care unit (ICU) Dr. Cipto Mangunkusumo Hospital-Jakarta and H. Adam Malik Hospital-Medan from July to December 2019. In

total, 49 subjects were included in the study and randomized into two groups. Intervention group (n=23) received 1.5 gram/6 hours of vitamin C in three days consecutively, whereas the control group (n=26) did not receive the vitamin C. Measurements of IL-6 levels, CRP levels, and SOFA scores were performed in the 24th, 48th, and 72th hour.

Results. There were no significant changes of IL-6 levels (p=0.423), CRP levels (p=0.080), and SOFA scores (p=0.809) between the two groups.

Conclusion. The intravenous administration of 6 grams of ascorbic acid did not significantly affect the changes of Interleukin-6 levels, C-Reactive Protein levels, and SOFA scores in septic and septic shock patients in intensive care unit.