Insulin effect on erythrocyte NO metabolism in patients with sepsis

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Aims: The objective of this research was to evaluate the effect of insulin on erythrocyte NO efflux and GSNO levels in patients with sepsis and to compare with healthy humans. To accomplish this, was performed an in vitro study with blood samples collected from 21 healthy subjects and 20 patients with sepsis. From each sample, blood suspensions aliquots were obtained and incubated in absence (control) and presence of insulin, acetylcoline (ACh) and with both together. Afterwards, NO efflux was quantified with an electrode and S-nitrosoglutathione (GSNO) by spectrophotometric analysis.

Results: NO efflux increased in suspensions with ACh, insulin and both added (comparing to control) in healthy individuals, but for sepsis patients only in ACh aliquot; although there are no significant differences between patients and healthy individuals. GSNO concentration also increased in sepsis patients in the same aliquots comparatively to control and there were significant variation between patients and healthy humans.

Conclusion: erythrocyte NO efflux increase with insulin addition in healthy individuals and patients with sepsis. Concerning erythrocyte GSNO concentration, it was invariable in healthy humans and increased in patients with sepsis when insulin was added. Summarizing, insulin acts in NO metabolism both in healthy individuals and in sepsis patients in absence or presence of ACh.