



FACULDADE DE MEDICINA DE RIBEIRÃO PRETO

Departamento de Clínica Médica

REUNIÃO CIENTÍFICA

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**Título:** Glycocalyx endothelial damage in acute respiratory distress syndrome after flu syndrome

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**Abstract:**

**Introduction:** Respiratory viruses cause self-limiting disease of the upper airways. Occasionally, they may reach the lower airway and cause acute respiratory distress syndrome (ARDS), associated with high mortality rate. The pathophysiological mechanism responsible for triggering these severe respiratory manifestation is not yet fully understood. Endothelial glycocalyx is a carbohydrate-rich layer that covers the luminal surface of vessels and plays a central role in the control of vascular permeability, neutrophil migration, platelet aggregation, etc. Increasing evidence has been suggesting that its damage could be a crucial event in the pathophysiological process of acute lung injury. The objective of this study was to investigate whether the lesion of the endothelial glycocalyx occurs early in patients who develop ARDS after viral infection.

**Methods:** Patients with flu-like illness during the seasonal influenza outbreak period were divided into two groups: patients with and without ARDS. One group of healthy subjects was included for comparison. During the first medical evaluation the levels of albumin, lactate dehydrogenase, hyaluronan, thrombomodulin, syndecan-1, TNF-alpha, IL-6, IL-1beta were dosed.

**Results:** Out of 101 subjects, the with ARDS group had 30 patients (44 ± 16 years, 57% men), the without-ARDS group had 36 patients (39 ± 17 years, 42% men) and 35 subjects in the control group (44 ± 9 years, 51% men). Hyaluronan levels were significantly higher in the first group [31ng/ml (12-56)] than the other two groups [5ng/ml (3-10)] and [5ng/ml (2-8)]; p <0.0001. The level of LDH > 518 U / L [odds ratio (OR): 80 (95% CI: 15-418), p <0.0001], hyaluronan > 12.5ng / 5-37), p <0.0001] and albumin <3.9 g / dl [OR: 58 (95% CI: 11-308), p <0.0001] were associated with ARDS after viral infection.

**Conclusion:** Endothelial glycocalyx damage occurs early in patients with ARDS after viral infection. Hyaluronan, LDH and albumin levels help identify patients at high risk for ARDS after viral infection.