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Endothelial injury in COVID-19 and septic patients

Larissa Tami Hokama, Heraldo Possolo de Souza*

Universidade de São Paulo, Faculdade de Medicina (FMUSP)

*Orientador

ABSTRACT: *Introduction:* descriptions of the clinics presentation of COVID-19 and data from autopsies in deceased patients suggests that an important endothelial activation happens in COVID-19 evolution. *Objectives:* to determine the level of endothelial dysfunction and cytokines in sepsis and in COVID-19 and compare the extent of the endothelial activation and inflammation in both disease. *Methods:* patients were divided into three different groups: septic group, severe COVID-19 group and mild COVID-19 group. The septic group and severe COVID-19 group died from the respective disease and the mild group survived. The cytokines measured was: IFN- γ , TNF- α , IL-10, IL-1 β and IL-4. The endothelial dysfunction markers measured was: E-Selectin, Tissue Factor (TF) and von Willebrand factor (vWF). *Results:* IL-10 level was higher in severe COVID-19 patients, when compared to the septic patients. No differences were observed in the level of the others cytokines. Between endothelial markers, E-Selectin was significantly higher in the septic group when compared to severe COVID-19 group; and TF was significantly higher in severe COVID-19 group when compared to the mild COVID-19 group. *Conclusion:* these two diseased evaluated, sepsis and COVID-19, presents a similar pattern of cytokines and endothelial dysfunction markers. These suggests that in COVID-19, the endothelium plays an important role in the pathophysiology of the disease and can be better evaluated as a therapeutic target.

Keywords: COVID-19; Sepsis; Endothelial dysfunction; Systematic inflammation.