OBESITY INCREASES ORGAN INJURY AFTER POLYMICROBIAL SEPSIS

Nascimento, D.Z.; Vieria, A.A.; Goldim, M.P.; Florentino, D.; Danielski, L.G.; Rezin, G.T.; Petronilho, F.

Laboratório de Fisiopatologia Clínica e Experimental, Programa de Pós-graduação em Ciências da Saúde, Universidade do Sul de Santa Catarina, Tubarão, Brasil.

Introduction: Sepsis is a severe clinical syndrome in which a system-wide inflammatory response follows initial attempts to eliminate pathogens. Oxidative stress is also related to sepsis and its consequences may be exacerbated when associated with a diagnosis of chronic inflammation, such as in obesity. Objectives: Thus, the aim of the present study was to evaluate the susceptibility of oxidative damage of different organs after sepsis in obese rats. Materials and methods: During two months, Wistar rats, 60 days, 250-300g received hypercaloric nutrition to induce obesity. Sepsis was induced by cecal ligation and puncture (CLP) and sham-operated rats was considered control group. The experimental groups were divided into sham + eutrophic, sham + obesity, CLP + eutrophic and CLP + obesity. Twelve hours after surgery, lipid peroxidation by TBARS and activity of antioxidant enzymes superoxide dismutase (SOD) and catalase (CAT) were evaluated in liver, kidney, lungs and heart. Results: Obesity increased lipid peroxidation in liver and lungs in sepsis induced rats compared to sham + obesity and CLP + eutrophic, and in kidney and heart only compared to sham + obesity. SOD enzyme activity was reduced in CLP + obesity compared to all groups in liver and kidney and in kidney compared to sham + obesity group. Only in lungs were observed reduction in CAT enzyme activity in CLP + obesity compared to CLP + eutrophic and sham groups. Conclusion: The data indicate that obese rats subjected to CLP have increased oxidative lipid damage and lower antioxidant enzyme activities in different organs. It follows that obesity due to its pro-inflammatory phenotype can aggravate or accelerate the sepsis-induced oxidative damage in rat.

Keywords: Oxidative stress; Sepsis; Obesity.

Acknowledgements: CNPq-PIBIC.