

ABSTRACT

Infectious diseases are the worldwide leading cause of morbidity and mortality. Sepsis is the major cause of death in infectious diseases. It is one of the most serious and also one of the most difficult treatable conditions of contemporary medicine. Sepsis is the main cause of death in intensive care units. Causal therapy of sepsis does not yet exist. With a far better understanding of patho/physiological mechanism of sepsis, it is possible to model new preclinical experiments to verify the efficiency and security of new therapeutic procedures. Large animal experiments in progressive sepsis, with the use of domestic porcine, play a vital role. Long-standing experience with this model and similarity to human facilitate the realization of more complex experiments with potential for the relevant translation of results into the subsequent clinical studies on human subjects. The objective of this doctoral dissertation was to assess on the clinically relevant model: 1) the efficiency and security of extracorporeal membrane oxygenation in the event of vasoplegic septic shock; and 2) the benefit of two innovative therapeutic approaches to treatment of sepsis: a) the intravenous administration of mesenchymal stem cells; and b) the activation of the neuro-inflammatory reflex through the vagus nerve stimulation.