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MicroRNA's role in sepsis and endotoxin tolerance. More players on the stage

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Abstract
MicroRNAs are non-coding RNA fragments, well characterized and well preserved along the evolution of the species and whose essential role is to regulate gene expression. MicroRNAs perform its action on messenger RNA ("target"). They induce degradation or repression of target translation with a significant decrease in the quantity and the activity of proteins. MicroRNAs are involved in normal cell function. Abnormal levels of microRNA were found in several pathological contiditions such as cancer, autoimmune diseases, viral infections, sepsis. Sepsis appears as a result of an improper inflammatory response after systemic bacterial infection. It remains a disease with a high incidence and mortality despite the evolution of diagnostic and treatment techniques. Sepsis patients have similar features to those found in the endotoxin tolerance phenomenon. Endotoxin tolerance is a state of hyporesponsivness to endotoxin challenge induced by a prior exposure. Due to its important role in repression of the pro-inflammatory cytokines translation, microRNA can be considered a new mechanism of endotoxin tolerance and a new mechanism involved in sepsis pathogenesis. In sepsis patients abnormal levels of the following types of microRNA were found: miR-146, miR-155, miR150, miR-132. Further studies are carried out to demonstrate the potential role of microRNA as biomarkers in sepsis.
Key words: microRNA, target, endotoxin tolerance, TNF-a, sepsis, mediators

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