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Dysregulation of human beta defensin-2 gene expression in peripheral blood of patients with sepsis and non-septic critically ill patients

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Endogenous antimicrobial beta defensins, including human beta defensin 2 (hBD2), play an important role in the immune defense response to various infections and inflammatory diseases. We investigated the quantitative expression of hBD2 in peripheral blood of patients with sepsis, non-septic critically ill patients and healthy individuals.

RNA was extracted from peripheral whole blood of 30 patients with sepsis (12 with septic shock and 18 without septic shock), 10 critically ill non-septic patients and 20 healthy control individuals and the expression level was analyzed by quantitative real time PCR.

The mRNA expression of hBD2 was significantly upregulated in peripheral blood of sepsis and non-septic critically ill patients compared to healthy individuals. Despite low number of patients which limits the statistical power of the study, hBD2 mRNA expression was significantly downregulated in peripheral blood of sepsis patients with septic shock compared to patients without septic shock.

The discrepancy between hBD-2 expression in sepsis and non-septic critically ill patients could explain the differences in the immune response between these two diseases, and the severity of sepsis may contribute to the dysregulation of hBD2 gene expression. Future studies examining hBD2 protein level as well as mRNA expression could lead to the development of a potentially new biomarker for sepsis.

Biography

Khalid Mubarak Bindayna received his Ph.D in Medical Microbiology from Faculty of Medicine, University of London in 1989. More than thirty publications are credited to his name. Currently Prof. Bindayna is chairing the Department of Microbiology, Immunology and Infectious Diseases of the College of Medicine and Medical Sciences. He is also the Director of the Master in Laboratory Medicine program at the College.

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