Blood Coagulation Abnormalities in Multibacillary Leprosy Patients

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INTRODUCTION. Leprosy is a chronic infectious disease caused by *Mycobacterium leprae* that affects the skin and peripheral nerves, causing physical deformities and disability due to nerve damage. It is known that the immune response to infections by pathogens such as bacteria can be accompanied by changes in metabolic pathways, which may include coagulation and lipid metabolism. Here, we investigate the nature of clot exacerbation in some multibacillary leprosy patients. **OBJETIVE:** The goal of this work was to understand the composition of a lipid-rich mass (here called as leprosum mass) formation and quantify, in serum and plasma from multibacillary type II reactional patients and multibacillary not reactive ones, molecules potentially involved in the clot exacerbation. **MATERIALS AND METHODS:** This work was developed through the analysis of two groups of patients: a prospective group, composed by 11 non-reactional and 14 reactional erythema nodosum leprosum multibacillary patients; and a retrospective group, composed by 638 leprosy patients from Souza Araújo Outpatient Unit of Fiocruz. The clot's proteins were analyzed by 2D-Eletrophoresis and Mass spectrometry; and coagulation parameters were determined in fresh blood. **DISCUSSION AND RESULTS**: Formation of the leprosum clot was directly correlated with increased plasma levels of tissue and von Willebrand factors. High performance thin layer chromatography demonstrated a high content of neutral lipids in the leprosum clot. Proteomic analysis demonstrated that the leprosum clot presented in these patients is highly enriched in fibrin. Remarkably, differential 2D-proteomics analysis between leprosum clot and control clot identified two proteins present only in leprosy patients clots: complement component 4 and an inter-alpha-trypsin inhibitor family heavy chain-related protein. This data was validated in hepatocytes infected in vitro by *M. leprae*. **CONCLUSION:** We hypothesize that some of the acute clinical symptoms observed during reactional episodes, such as tissue necrosis, are intimately related to a severe procoagulant state of leprosy patients.

Palavras chave: leprosy, coagulation, proteome
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