Histological and Immunohistochemical Study on the Possible Relationship between L-arginine-Induced Acute Pancreatitis and Lung Injury

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Abstract

Introduction: Acute pancreatitis is an inflammatory process with very high morbidity and mortality rate. It may be complicated with multiorgan failure. Pulmonary complications are the most frequent and potentially the most serious complications.

Aim of the work: To elucidate the possible relationship between L-arginine-induced acute pancreatitis and lung injury in adult male albino rats by using histological and immunohistochemical techniques.

Materials and methods: This study was performed on 14 adult male albino rats. Animals were randomly divided into two groups: Group I (Control group), which was given two intraperitoneal injections of normal saline, 1 h apart and Group II (Acute pancreatitis group (AP) in which pancreatitis was induced by two intraperitoneal injections of L-arginine, 1 h apart. Histological (using H&E) and immunohistochemical (using anti TNF-α, anti IL-6 and anti P-selectin) studies were performed. Moreover, morphometric study followed by statistical analysis was done for area % of TNF-α, IL-6 and P-selectin immunoexpression in pancreatic and lung tissues.

Results: AP group revealed inflammatory cellular infiltration within the connective tissue septa of the pancreas. The lungs of AP group showed thickened interalveolar septa with massive inflammatory cellular infiltration. A significant increase in immunoreactivity of TNF-α, IL-6 and P-selectin in pancreatic and lung tissues was observed.

Conclusion: The present study shed light on the important role of TNF-α, IL-6 and P-selectin in the pathogenesis of acute pancreatitis and its associated lung injury.

Keywords: Acute pancreatitis, Lung injury, L-arginine, TNF-α, IL-6, P-selectin

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