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Implication of intercellular adhesion molecule-1 (ICAM-1) and serum N(G)-hydroxy-L-arginine (L-NHA) in the pathogenesis of systemic sclerosis

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In a trial to throw light on the implication of intercellular adhesion molecule-1 (ICAM-1) and N(G)-hydroxy-L-arginine (L-NHA) in the pathogenesis of systemic sclerosis or Scleroderma, (SSc), their serum levels were estimated in twenty SSc patients using ELISA and high performance liquid chromatography respectively. In situ "local" expression of ICAM-1 in lesional skin of these patients was also assessed using biotinstreptavidin amplified detection system. Patients were divided into 3 groups according to the cutaneous extension of sclerosis (Grades I; II & III). A significant (P < 0.001) difference was found between patients (n = 20) and controls (n = 10) regarding soluble ICAM-1 (s ICAM-1) and L-NHA levels. Among patients, a significant difference (P < 0.001, 0.05 respectively) in sICAM-1 & L-NHA serum levels was found between patients who had musculoskeletal manifestations and those who had not. A significant (P < 0.001) difference in L-NHA level was found between patients with grade I, II, III. Among patients, there was a negative correlation (r = -0.413) between serum sICAM-1 and the duration of the disease, and a positive correlation (r = +0.514) between sICAM-1 and L-NHA serum levels. 4 patients (23.6%) showed mild immunostaining, 8 patients (47%) showed moderate staining, and 5 patients (29.4%) showed intense staining, while control specimens showed negative immunostaining. In conclusion, ICAM-1 and serum L-NHA are probably implicated in the pathogenesis of SSc. Elevated sICAM-1 and L-NHA serum could be used as a quantitative marker of tissue sclerosis, allowing better follow up of patients.