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EXPRESSION AND CYTOKINE MODULATION OF VASCULAR CELL ADHESION MOLECULE-1 IN NORMAL AND DISEASED HUMAN SKIN. RW Groves, E Ross, JNW Barker, DM MacDonald. Laboratory of Applied Dermatopathology, UMDNS, Guy's Hospital, London, UK.

Expression of adhesion molecules by vascular endothelium and other cutaneous cells is likely to be of great importance in the genesis of inflammatory skin disease. Vascular cell adhesion molecule-1 (VCAM-1) is a novel endothelial cell molecule with adhesive properties in vitro for lymphocytes and eosinophils. Using anti-VCAM-1 monoclonal antibodies, we have performed an immunohistochemical study of its expression in normal and inflamed skin, and have examined ways of modulating its expression in vivo.

In normal skin (n=8) low levels of VCAM-1 were present on perivascular dendritic cells and occasional endothelial cells. In inflamed skin (allergic contact dermatitis [n=6, time 24-96 hrs], chronic atopic dermatitis [n=6], psoriasis [n=8], and lichen planus [n=6]) VCAM-1 was upregulated on dermal endothelium and was also present on interstitial dermal dendritic cells. Three normal volunteers underwent intradermal injection of 100U HUHF and 5 and received 30ug IFN gamma. Following TNF alpha and IFN gamma there was marked upregulation of VCAM-1 on dermal dendritic cells and endothelial cells.

Widespread expression of VCAM-1 in inflamed skin suggests that this molecule may be of importance in the initiation and maintenance of a variety of skin diseases. Both keratinocyte derived (TNF alpha) and lymphocyte derived (IFN gamma) cytokines may be of importance in its control; interference with these pathways may be of future therapeutic benefit.

EXPRESSION OF BETA-2 INTEGRIN MOLECULES ON HUMAN KERATINOCYTES IN CYTOKINE-MEDIATED SKIN DISEASES. M. Simon, J.-L. Huovari; Dept. of Dermatology, University of Erlangen-Nürnberg, Erlangen, FR Germany.

Integrins are cell surface molecules of importance in a wide variety of cellular functions, including morphogenesis, cell migration and cell matrix interactions. The beta 2 integrin (beta 2) integrin subunit, for example, consists of three members, each composed of a shared beta subunit (CD11b) covalently associated with unique alpha subunits (CD11a, CD11c, CD11b), in the rabooh. In the present study, we have analysed the expression pattern of beta 2 integrins on the surface of human keratinocytes (HKs) in biopsies obtained from healthy volunteers, from positive tuberculin skin tests and from patients with acute urticaria (AU), lichen planus (LP), psoriasis vulgaris (PV), mycosis fungoides (MF) or purpura pigmentosa chronic (PPC). In biopsies obtained from positive tuberculin skin tests and from the clinically involved skin of patients with AU, LP, PV, MF, PPC and AU patients and those from the healthy subjects failed to give a positive reaction when reacted with CD11b, CD11a, CD11c and CD18 monoclonal antibodies. The positive oxidase-positive reaction was observed on the membranes of the HKs when the mononuclear cells (MNCs) Dako CD11a, Dako CD11c and five monoclonal antibodies were used. In contrast, no specific staining of the HKs was observed with the same MNCs in biopsies from healthy volunteers, from AU patients and in the uninvolved skin specimens obtained from the other patients. The HKs from PV, LP, MF, PPC and AU patients and those from the healthy subjects failed to give a positive reaction when reacted with CD11b, CD11a, CD11c and CD18 monoclonal antibodies. Our results provide further evidence that the HKs may be actively involved in cell adhesion processes.

INCREASED ADHERENCE OF PERIPHERAL BLOOD MONONUCLEAR CELLS AND HUMAN FIBROBLASTS TO SKIN SPECIMENS FROM PATIENTS WITH SCLERODERMA. S. Mietzsch, B. Maika, L. Rudnicka, M. Skopinska, A. Skundlewieza, K. Bunzelmann, J.P. Johnson, J. Jandl. Department of Dermatology, Warsaw School of Medicine, Warsaw, Poland, and Institute of Immunology, University of Cologne, Cologne, Germany.

In addition to peripheral blood mononuclear cells (MNC) from patients with systemic sclerosis (SSc) to fibroblast monolayers was studied by means of 51Cr isotope assay. The attachment was compared to the expression of ICAM-1, LFA-3 and HLA-DR molecules on fibroblasts derived from SSc patients and from healthy individuals. The adherence of MNC from SSc patients was significantly increased as compared to MNC from control MNC. MNC from both SSc patients and healthy individuals showed a lower adherence to fibroblasts from SSc patients than to control cells. This was correlated with an increased spontaneous expression of ICAM-1 on SSc fibroblasts, which was increased in ICAM-1 positive cultured skin biopsies from healthy volunteers, from patients with SSC and from healthy individuals. The adherence of MNC from SSc patients was significantly increased as compared to MNC from control MNC. MNC from both SSc patients and healthy individuals showed a lower adherence to fibroblasts from SSc patients than to control cells.