tion of neutrophils with release of granules is rarely found.

DISCUSSION

Neutrophils infiltrating the site of aphthous ulceration of the oral mucosa of patients with Behçet's disease without degeneration are frequently phagocytosed by LMC. In Behçet's disease, the presence of mononuclear cells with phagocytosed neutrophils was demonstrated electron microscopically in the synovial fluid by Abdou et al. (6). It is noteworthy here that neutrophils with almost normal ultrastructure (7) are phagocytosed by LMC. This phenomenon indicates the recognition of the infiltrating neutrophils as a foreign body, probably because of some non-specific damage sustained by the neutrophils (8) and/or some specific antigenicity against neutrophils acquired by LMC. According to the findings of the authors, epithelial prickle cells are phagocytosed by mononuclear cells (macrophages) in the pre-ulcerative stage without neutrophilic infiltration (9, 10). These macrophages invading intra-epithelially may be in intimate relationship with LMC bearing phagocytosed neutrophils, thus possibly playing an important role in the etiology of Behçet's disease.

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Immunoglobulin-bearing Cells in Liver Biopsies from Patients with Psoriasis

N. K. Veien,[1] J. Aldershvile,[2] F. Hardt,[2] Anne Marie Møller,[2] J. O. Nielsen,[3] A. Nyfors[1, 4] and U. Tage-Jensen[2]

[1]*Department of Dermatology, Finsen Institute,* [2]*2nd Department of Medicine, Kommunehospitalet,* [3]*Division of Hepatology, Hvidovre Hospital, Copenhagen, Denmark, and* [4]*Department of Dermatology, Bergen University Hospital, Bergen, Norway*

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Abstract. Sections of liver tissue from 41 patients with psoriasis were examined histologically and by immunofluorescence microscopy to detect cells bearing the immunoglobulins IgG, IgA or IgM. Two patients with non-specific, reactive hepatitis and two with cirrhosis had more numerous immunoglobulin-bearing cells, while no correlation was found between the number of immunoglobulin-bearing cells and 1) other types of abnormal liver histology, 2) lymphocytic infiltrates in the liver, or 3) methotrexate therapy.

Key words: Immunofluorescence microscopy; Immunoglobulin-bearing cells; Liver biopsy; Methotrexate; Psoriasis

Systemic disease associated with psoriasis has been reported (5), and abnormal liver morphology has been seen in psoriatics, particularly those receiving Methotrexate (MTX) treatment (3). It is not known whether psoriasis itself is associated with liver disease (4, 6).

The study reported was undertaken to determine whether the deposition of immunoglobulin-bearing cells in the liver of a patient with psoriasis is an

Table I. *Mean number of immunoglobulin-bearing cells per mm liver biopsy compared with histological findings*

Liver histology	Receiving MTX ($N=27$)				Not treated with MTX ($N=14$)			
	No. of pats	No. of cells bearing			No. of pats	No. of cells bearing		
		IgG	IgA	IgM		IgG	IgA	IgM
Normal	8	7.5	4.1	3.9	4	2.5	6.8	5.8
Steatosis and/or Kupffer cell proliferation and/or lymphocyte infiltration	15	4.8	4.6	1.1	10	6.8	6.9	3.2
Non-specific reactive hepatitis	2	23	8.5	2	0	–	–	–
Cirrhosis	2	20	31	9	0	–	–	–

indication of liver damage and whether such a deposition can be related to MTX intake.

MATERIAL AND METHODS

41 patients, 17 males and 24 females, with a clinical diagnosis of psoriasis participated in the investigation. 39 had psoriasis vulgaris, and 2 had widespread pustular psoriasis. The patients ranged in age from 17 to 77 years with a mean of 51 years. The disease duration was 20 years or more in 22 patients. At the time of the study 27 patients were receiving MTX or had taken this drug within the past 3 months. The mean total dose was 4344 mg (range 160 to 9025 mg). The duration of MTX therapy varied from 4 months to 10 years with a mean of 64 months.

Percutaneous liver biopsy samples were taken *a.m.* Menghini from all the patients. 20–25 mm biopsies were usually obtained. One-half of each sample was fixed in formaldehyde and examined histologically for cirrhosis, fibrosis, non-specific reactive hepatitis, and steatosis by the Pathology Department staff of the Finsen Institute. The other half was stored at −70°C and examined by immunofluorescence microscopy not more than one week after removal. The examination for IgG, IgA and IgM immunoglobulin-bearing cells was carried out as previously described (1). The number of fluorescent cells was compared with the size of the biopsy. The numbers given in Table I represent fluorescent cells per mm biopsy. The serum levels of the immunoglobulins IgG, IgA and IgM, as well as transaminase and alkaline phosphatase levels, were determined.

Hepatitis B surface antigen (HBsAg) and the corresponding antibody (anti-HbsAb) were determined by the

Table II. *Duration of disease compared with histological and biochemical evidence of liver diseas*

		No. of patients with disease duration <20 years	No. of patients with disease duration ≥20 years
Liver histology	Normal	5	7
	Steatosis and/or Kupffer cell proliferation and/or lymphocyte infiltration	12	13
	Non-specific reactive hepatitis	1	1
	Cirrhosis	1	1
More than 10 fluorescent cells	IgG	3	4
	IgA	4	6
	IgM	3	2
Elevated serum levels of	IgG	3	4
	IgA	7	7
	IgM	7	7
Abnormal values of serum transaminases		6	4
Abnormal values of serum alkaline phosphatases		3	2

use of solid phase radioimmunoassay (Ausria II and Ausab, Abbott Diagnostic Division).

Liver membrane antibody (LMA) and anti-nuclear antibody (ANA) were determined as previously described (2).

RESULTS

The number of immunoglobulin-bearing cells in each liver section was compared with the histological findings and whether or not MTX was given, as depicted in Table I. More immunoglobulin-bearing cells were seen among the patients with non-specific reactive hepatitis and cirrhosis than among those with normal liver histology. The number of immunoglobulin-bearing cells in the liver sections from patients with histological abnormalities other than hepatitis or cirrhosis was no different from the number in patients with normal liver histology. The number of immunoglobulin-bearing cells did not vary between the group of patients with lymphocytic infiltrates in the liver biopsies and the group with no infiltrates.

Results of comparisons between the duration of the disease and liver abnormalities as determined by histology, immunoglobulin-bearing cells, serum immunoglobulin levels, transaminase and alkaline phosphatase levels are presented in Table II. No correlations were found between the disease duration and any of these parameters.

HBsAg was not found in any of the patients, while anti-Hbs was present in one patient. LMA was not found in any of the sera. Two female patients aged 49 and 76 years had antinuclear antibodies in high titres. The younger of the two had hepatitis, and steatosis was found in the liver biopsy of the other patient.

DISCUSSION

The few patients in this study with hepatitis and cirrhosis had a greater number of fluorescent cells in the liver than any others group of patients, as opposed to previously published findings (1).

MTX treatment of psoriatics with normal or moderately abnormal liver histology did not influence the number or type of immunoglobulin-bearing cells in the liver. The lack of correlation between lymphocytic infiltrates in the liver biopsies and MTX therapy also indicates that liver damage associated with MTX therapy of psoriasis might be due to other than immunological mechanisms. This in addition to the fact that there was no difference in the number of immunoglobulin-bearing cells among those patients with normal and those with moderately abnormal liver histology suggests that the determination of the number of immunoglobulin-bearing cells is not a useful procedure in detecting liver damage associated with MTX therapy.

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Affinity of ^{3}H-8-MOP to Human Chromosomes and Cells

Hans Christian Wulf and Erik Niebuhr

Department of Dermatology, The Finsen Institute, and University Institute of Medical Genetics, Copenhagen, Denmark

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Abstract. Human leukocytes and fibroblasts were cultured in medium containing ^{3}H-8-methoxypsoralen (10^{-6} M and 3.3×10^{-6} M). At different stages during the culturing period the cells were exposed to ultraviolet light (1, 2, and 10 J/cm^2). After the culture period the slides for chromosome analysis and smears of the cells were prepared. Autoradiography of these slides could not dem-