ing these patients with photochemotherapy, and the UVA doses used for PUVA therapy should for quite a number of mycosis fungoides patients be lower than for psoriatics. However, remission can well be induced with low UVA doses, as demonstrated by 2 of the patients in this study, without troublesome side effects.

By treating cutaneous mycosis fungoides lesions to complete remission, the most photosensitive areas are thus removed. However, even in apparently normal skin which is treated simultaneously the light reactions are normalized. Following PUVA therapy this could be ascribed to the melanin protection and increased thickness of the epidermis, especially of stratum corneum. This photoprotective mechanism has already been shown to be effective in the treatment of a photodermatosis such as polymorphic light eruption (2). Hyperpigmentation occurs commonly following topical application of mechlorethamine (8). It occurs in the absence of any sign of cutaneous irritation or inflammation. The mechanism of the tanned skin following use of topical mechlorethamine is thus unknown. Nevertheless, the tan induced by mechlorethamine could certainly contribute to the normalized light reactions.

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Association between Psoriasis and the α_1-Antitrypsin Deficiency Gene Z

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Abstract. In a series of 72 psoriatic patients the frequency of individuals carrying the α_1-AT deficiency gene Z was found to be significantly ($p<0.001$) increased.

Key words: Psoriasis; Alpha-1-antitrypsin types; Disease association

More than two dozen electrophoretically distinct variants of α_1-antitrypsin (α_1-AT), controlled by a series of autosomal alleles at a locus Pi have been described (6). By isoelectric focusing it has been possible to distinguish subtypes of the common variant M, viz. M_1, M_2 (9) and M_3 (8). Three rare genes, Z, 0 (null) and Duarte, are associated with a very low level of α_1-AT in serum.

Individuals homozygous for the Z gene have 10–15% of the normal serum level. Homozygotes for the null allele probably lack α_1-AT altogether. Homozygosity for the Duarte gene results in about 10% of the normal serum level of α_1-AT. The S gene is associated with a moderate decrease of α_1-AT. Homozygotes for this gene have 60% of the normal serum level.

A decreased level of α_1-AT has been found to be associated with chronic obstructive lung disease (9), juvenile liver cirrhosis (10), respiratory distress syndromes (5), malignant hepatoma (4) and non-atopic asthma in children (1).

Table 1. *Distributions of α_1-AT phenotypes in psoriatic patients and controls*

	α_1-AT phenotypes								Number examined
	M_1	M_1M_2	M_2	M_1S	M_2S	M_1Z	M_2Z	M_1F	
Patients									
n	47	12	2	2	0	8	1	0	72
%	65.3	16.7	2.8	2.8	0.0	11.1	1.4		
Controls									
n	418	134	38	13	2	12	1	1	619
%	67.5	21.6	6.1	2.1	0.3	1.9	0.2	0.2	

In this report we present the finding of an increased frequency of individuals carrying the α_1-AT deficiency gene Z among psoriatic patients. The psoriatic patients have previously been studied with respect to other genetic markers (3).

Phenotypes of α_1-AT were determined in 72 psoriatic patients by means of isoelectric focusing according to Frants & Eriksson (7). The M_3 variant was not typed. Conscripts from Västerbotten county (2) were used as controls. The results are shown in Table 1. The frequency of rare types (M_1S, M_2S, M_1Z and M_2Z) was significantly ($p<0.001$) higher in the psoriatic patients than in the controls. This was due to a significant ($p<0.001$) increase of the M_1Z abd M_2Z types. There was no significant increase in MS types. The increased frequency of the MZ types among psoriatic patients corresponds to a relative risk of 6.7, which is a rather high figure. However, most individuals with psoriasis do not have the MZ types and the association between MZ and psoriasis would explain only a minor part of the etiology of psoriasis. Thus the correlation coefficient Φ was only 0.18. Furthermore, the present results are obviously in need of confirmation. Such studies are under way.

Liver cirrhosis has been found more often in psoriatic patients than in controls (11), an observation which has been difficult to explain. However, since juvenile liver cirrhosis is known to be associated with the α_1-AT gene Z our observation of an increased frequency of the Z gene in psoriatic patients might be an explanation of their tendency to develop hepatic disease.

If it can be established that a lowered level of α_1-AT, the major protease inhibitor of serum, is associated with an increased risk of psoriasis, this result may add significantly to our understanding of the complex metabolic mechanisms underlying this disease.

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