Anti-Asparaginyl-tRNA synthetase autoantibodies (KS)

Synonyms anti-Ks

Indications
- Dermatomyositis
- Polymyositis
- PM/DM-Overlap syndromes with other connective tissue diseases
- Antisynthetase syndrome
- Interstitial lung disease
- Raynaud's phenomenon (active stage, before starting therapy)

see also
- Autoantibodies in idiopathic inflammatory myopathies

Antigens

The asparaginyl-tRNA synthetase (EC 6.1.1.22; M_r 62,9 kDa; chromosome 18q21.31) belongs to the family of aminoacil tRNA synthetases, which catalyze the ester bound of amino acids to their specific transport RNA (tRNA). The latter ones are engaged in the transport of amino acids for their assembly into the nascent polypeptide chain within the ribosomes.

Autoantibodies

The indirect immunofluorescence test (HEp-2-cells) of sera containing anti-tRNA synthetase antibodies reveals an exclusive cytoplasmic fluorescence pattern. The anti-KS antibodies react with multiple conformational and conformation independent epitopes of the antigen. Some antibodies also recognize the catalytic domain of the synthetase and inhibit its catalytic activity *in vitro*. The antibodies largely belong to the immunoglobulin isotype IgG.

Prevalence

Antibodies against the alanyl-tRNA synthetase can be detected in less than 3 % of adult patients manifesting especially amyopathic forms of myositis associated with interstitial lung disease (table 1).

Clinic

Patients harboring anti-KS antibodies mostly present themselves with symptoms of an interstitial lung disease and less frequent signs of muscle weakness which is reflected by the rather low serum concentrations of creatine kinase in these patients (Hamaguchi et al. 2013). Also the manifest symptoms of the anti-synthetase syndrome as are interstitial lung disease, polyarthritis (also erosive forms), so called "mechanic hands" (rough, cracked skin at the tips and lateral aspects of the fingers forming irregular dirty-appearing fissures because of hyperkeratosis), Raynaud's phenomenon and sicca-syndrome. Malignant tumors have been found in 15 % of these patients.

Table 1 Clinical manifestations in anti-KS positive patients (Hamaguchi et al. 2013).

DM	CADM	PM	DM/PM-OM	SSc	ILD	LES
-	8 %	-	-	15 %	77 %	-

DM	dermatomyositis
CADM	cinically amyopathic dermatomyositis
DM/PM-OM	DM/PM-overlap
PM	polymyositis
SSC	systemic sclerosis
ILD	interstitial lung disease
SLE	systemic lupus erythematosus

Autoantibodies against tRNA synthetases are mutually exclusive. The simultaneous occurrence of two ant-tRNA-synthetase antibodies of different antigen specificities is extremely rare. But their association with antibodies not specific for myositis, so called myositis-associated anti-

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bodies (MAA), directed against topoisomerase, centromeres, U1snRNP, Th/To, U3snRNP, Sm, SS-A/Ro 52 or SS-A/La may be seen quite often.

Literature

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