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Beneficial effects of reduced intake of polyunsaturated fatty acids in the diet for one year in patients with systemic lupus erythematosus

Sir: We have investigated the effects of dietary changes in patients with systemic lupus erythematosus (SLE) in an open study. Patients were treated with a diet reduced in polyunsaturated fats and enriched in saturated fat for 12 months. This approach was inspired by a report by Hurd, who showed that such a diet markedly prolonged survival and reduced all manifestations of disease in NZB/W mice—that is, an experimental model of SLE.[1 2] Both deficiencies and excesses in macronutrients and micronutrients seem to affect the immune response. It has also been shown that other changes in dietary fatty acid composition have a beneficial effect on mouse strains which spontaneously develop manifestations of autoimmune disease, such as NZB/W and MRL/L.[3 4]

Nineteen patients (17 female) with a mean age of 37 years (range 18–52) and an average disease duration of 13 years (range 1–26) were included in the study. All patients fulfilled at least five of the New York revised criteria for the diagnosis of SLE.[5] The activity or inactivity of their disease was judged at the start and end of the diet period. Active and inactive SLE were defined according to the doctor's and patients' estimates of appearance or absence of new symptoms of the disease or aggravation of earlier symptoms. Patients with symptoms of atherosclerosis, with diabetes mellitus or arterial hypertension, treated with β blockers, were excluded.

Patients were initially admitted to the day centre at the department of rheumatology for one week in groups of four. A detailed dietary history was taken by a dietician. During the admission week the patients were instructed by a dietician in the theory and practical aspects of following a diet in which the ratio of polyunsaturated to saturated fatty acids was reduced from an average of 0·3 to 0·1. They were told not to change their total energy intake. During the study the patients saw the dietician every three months to monitor dietary adherence. A dietary history for each patient was recorded after nine to 12 months.

Laboratory analyses and clinical examinations were performed at the start and every three months throughout the study. Compliance was monitored by diet counselling and by analysis of fatty acid percentage composition. The percentage content of linoleic acid was already significantly reduced after three months and continued to drop throughout the treatment period in plasma triglycerides, cholesterol esters, and phospholipids ($p<0·01$ for all three). After 12 months the linoleic acid percentage was reduced in adipose tissue ($p<0·01$). These findings indicate that the patients complied with the diet regimen. Serum and low density lipoprotein cholesterol increased (both $p<0·05$) but remained within the normal limits. High density lipoprotein 2 cholesterol increased ($p<0·05$) and high density lipoprotein 3 decreased ($p<0·05$).

The number of patients with active SLE was reduced from 11 to three by the end of the study ($p<0·05$). The prednisolone consumption was reduced from 10·1 to 7·0 mg/day ($p<0·01$). The total amount of drugs used by patients, including antimalarial and immunosuppressive drugs, was estimated at the start and at the end of the diet period. It was reduced for 14 patients and remained unchanged for the other five. The table gives detailed information about drug use before and after one year of the diet treatment. There were no significant changes in routine laboratory tests or other laboratory indices measured at the end of the year, including anti-DNA antibodies and complement levels. In general, the patients tolerated the treatment well and no significant side effects were noted.

Our results indicate that substitution of polyunsaturated for saturated fats in the diet may reduce inflammatory metabolites, probably derived from polyunsaturated fatty acids which would explain the reduced disease activity despite reduced drug treatment. Spontaneous improvement and placebo effects cannot be excluded, however, as this was an open study with no control group. Each patient served as his/her own control. These results highlight a possible supplementary, non-pharmacological approach to treatment of patients with SLE by the alteration of dietary fats to reduce intake of the omega six series of polyunsaturated fatty acids.

Patient characteristics and treatment before and after one year of treatment

Patient No	Age	Disease duration (years)	Before diet			After one year		
			Active (A) or inactive (I)	Prednisolone dose (mg)	Drug treatment*	Active (A) or inactive (I)	Prednisolone dose (mg)	Drug treatment
1	39	19	A	10	AM	I	6·25	AM
2	41	15	I	2·5	AM	I	2·5	AM
3	52	20	A	7·5	IS	A	6·25	IS
4	43	8	I	12·5	IS	I	7·5	IS
5	33	17	A	20	IS	A	17·5	IS
6	50	11	I	15	IS	I	7·5	—
7	31	14	I	3·75	IS	I	1·25	—
8	43	17	A	10	—	I	0	—
9	35	11	A	7·5	AM	I	6·25	—
10	36	2	A	12·5	—	I	12·5	—
11	31	2	A	25	IS	I	13·75	—
12	38	13	A	10	AM	I	10	AM
13	47	21	I	5	—	I	3·75	—
14	37	18	I	0	—	I	0	—
15	21	1	A	5	AM	I	7·5	—
16	34	14	I	7·5	AM	I	7·5	—
17	34	15	A	10	AM	A	10	AM
18	18	2	I	20	AM	I	7·5	—
19	28	26	A	7·5	AM	I	5	AM

*AM=antimalarial drug; IS=immunosuppressive drug.
The patients were female apart from Nos 8 and 16.

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Peyronie's disease in systemic sclerosis

Sir: Peyronie's disease is a localised fibrotic disorder involving the covering sheaths of the corpora cavernosa of the penis. Histological analysis shows a fibrous plaque firmly attached to the penis tunica albuginea.[1 2]

The cause of this disorder is unknown, but it is included among the localised fibrotic diseases (Riedel's struma, Dupuytren contracture, plantar fasciitis, orbitary pseudotumour, sclerosis cholangitis, and retroperitoneal fibrosis) or described as a form of localised systemic sclerosis or connective tissue disease with local collagen accumulation.[3 4] Recently, Gualdieri and coworkers described the first two cases of Peyronie's disease in systemic sclerosis.[5] A review of our series of patients with scleroderma has brought to light a new case.

A 63 year old man was admitted to our centre in 1985. There was a history of bilateral Dupuytren's disease and he had had an operation on his left hand in 1976.

Six months before this admission he had developed arthralgia involving several small and medium sized joints. There was morning stiffness, decreased sensitivity and paraesthesia of the left side of the face, Raynaud's phenomenon, and cutaneous hyperpigmentation. Physical examination showed hypopigmented and hyperpigmented areas in the upper thorax and arms, clubbing, and proximal cutaneous induration in both arms. A chest x ray showed bilateral lower lobe interstitial infiltrates, and the spirometry readings were consistent with a moderate restrictive process with impairment of carbon monoxide diffusion. The laboratory results showed an erythrocyte sedimentation rate of 97 mm/h, a positive 1/16 Waaler-Rose test, a 1/3200 positive antinuclear antibody test by indirect immunofluorescence with a speckled pattern and negative anti-DNA, extractable nuclear antigens, and anticentromere and Scl-70 antibodies. A gallium-67 lung scan and bronchoalveolar lavage examinations