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Effect of Dietary Supplementation with Very-Long-Chain n-3 Fatty Acids in Patients with Psoriasis

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ABSTRACT

Background: In several studies dietary fish oil has been found to have a beneficial effect on psoriasis, but the results are contradictory and based mainly on open studies or studies of small numbers of patients.

Methods: In a four-month double-blind, multicenter trial, we randomly assigned 145 patients with moderate-to-severe psoriasis to receive in their diet either highly purified ethyl esters of n-3 fatty acids ("fish oil"; 6 g of oil per day, containing 5 g of eicosapentaenoic and docosahexaenoic acid) or an isoenergetic amount of corn oil containing mainly n-6 fatty acids. All the patients were advised to reduce their intake of saturated fatty acids. A 48-hour dietary recall was performed, and the fatty-acid pattern in the serum phospholipids was monitored in a subgroup of patients.

Results: In the fish-oil group, n-3 fatty acids were increased in serum phospholipids ($P<0.001$), the ratio of arachidonic acid to eicosapentaenoic acid decreased ($P<0.001$), and the level of n-6 fatty acids decreased ($P<0.001$). In the corn-oil group, only docosahexaenoic acid increased significantly ($P<0.05$). The ratio of polyunsaturated to saturated fatty acids increased in both groups. Plasma concentrations of triacylglycerol decreased from base line in the fish-oil group ($P<0.05$). The score on the Psoriasis Area and Severity Index, as evaluated by the physicians, did not change significantly during the trial in either group. This was also true of a total subjective score reported by the patients, but a selected area of skin in the corn-oil group showed a significant reduction in the clinical signs ($P<0.05$). Scaling was reduced from base line in both groups ($P<0.01$). The fish-oil group had less cellular infiltration ($P<0.01$), and the corn-oil group had improvement in desquamation and redness ($P<0.05$). There was no clinically important difference between the two study groups. Among the

patients in the fish-oil group, an increase in the concentration of n-3 fatty acids in serum phospholipids was not accompanied by clinical improvement, whereas in the corn-oil group there was a significant correlation between clinical improvement and an increase in eicosapentaenoic acid and total n-3 fatty acids.

***Conclusions**:* Dietary supplementation with very-long-chain n-3 fatty acids was no better than corn-oil supplementation in treating psoriasis. Clinical improvement was not correlated with an increase in the concentration of n-3 fatty acids in serum phospholipids among the patients in the fish-oil group, whereas there was a significant correlation between clinical improvement and an increase in eicosapentaenoic acid and total n-3 fatty acids in the corn-oil group.