

Abnormal fatty acid pattern in rheumatoid arthritis. A rationale for treatment with marine and botanical lipids.

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OBJECTIVE: To assess the fatty acid pattern in plasma and synovial fluid (SF) in rheumatoid arthritis (RA) and to determine clinical factors related to possible abnormalities. **METHODS:** Thirty-nine patients with RA were included. SF samples were obtained from 9 patients. Disease activity was assessed using the Ritchie Articular Index and erythrocyte sedimentation rate. Fatty acids were assayed with gas liquid chromatography. **RESULT:** Decreased levels of eicosapentaenoic acid ($p < 0.0001$) and total n3 polyunsaturated fatty acids ($p < 0.05$) were observed in plasma and in joint fluid, respectively. An increase of the substrates of delta-5-desaturase (C20:3n6 and C20:2n6) and decrease of their products (C20:4n6 and C22:4n6) was observed in plasma total lipids and phospholipids. The long chain mono-unsaturated fatty acids (C20: 1n9, C22: 1n9, C24: 1n9) were increased in the joint fluid and in plasma phospholipids. Patients with active disease showed a mild decrease of several saturated fatty acids, n3, and n6 polyunsaturated fatty acids. Minor abnormalities or no changes in fatty acid profile were found related to use of steroids, nonsteroidal antiinflammatory drugs, and gold salts, or malnutrition. **CONCLUSION:** The fatty acid pattern found in RA (decreased levels of n3 polyunsaturated fatty acids) may explain the beneficial effect of fish oil. Changes in n6 polyunsaturated fatty acids suggest that delta-5 desaturation is decreased and this might facilitate the antiinflammatory effect of botanical lipids in RA.

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