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Gammalinolenic acid-enriched diet alters cutaneous eicosanoids.

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There are reports that vegetable oils containing gammalinolenic acid (GLA) may exert beneficial effects on inflammatory skin disorders. To determine whether or not dietary GLA exerts any modulatory role on cutaneous eicosanoids, guinea pigs were fed either a control diet containing safflower oil (less than 0.5% GLA) or borage oil, a GLA-rich diet containing 25% GLA. After an 8-week feeding period, epidermal samples from both animal groups were analyzed for fatty acid composition and tissue eicosanoids. Analysis of epidermal neutral lipids and phospholipids in borage oil-fed animals showed a marked increase in GLA and its elongase product, dihomogammalinolenic acid (DGLA). Similarly, analysis of epidermal eicosanoids in the borage oil-fed animals revealed significant increases in the amounts of the 15-hydroxy fatty acid (15-OH-20:3n-6) and prostaglandin PGE1, both metabolites of DGLA. Since these metabolites have anti-inflammatory potential, our results suggest that increased dietary GLA could result in the generation of local anti-inflammatory metabolites thus providing a non-toxic approach to suppression of cutaneous inflammatory skin disorders.

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