

Abstract

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Collagen cross-links in fibromyalgia syndrome.

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OBJECTIVE: The acceptance of fibromyalgia as a disease entity and its definitive diagnosis have been hampered by a dearth of knowledge concerning the underlying pathophysiology of this disease and the lack of specific biochemical markers applicable to its diagnosis. To determine whether abnormal collagen metabolism is a characteristic of fibromyalgia, we have analyzed collagen metabolites in the urine and serum of patients with fibromyalgia.

METHODS: The diagnosis of fibromyalgia was made according to the American College of Rheumatology criteria. Urine and serum were collected under standardized conditions from 39 patients and 55 age- and sex-matched controls. Pyridinoline (Pyd) and deoxypyridinoline (Dpyd), which represent products of lysyl oxidase-mediated cross-linking in collagen and are indicators of connective tissue and bone degradation, respectively, were analyzed by ion-paired and gradient HPLC method with fluorescence detection (HPLC). Levels of hydroxyproline (Hyp), a collagen turnover marker, were also measured. The findings were related to creatinine levels and the Pyd/Dpyd ratio determined.

RESULTS: The Pyd/Dpyd ratios in the urine and serum and the Hyp in the urine were significantly lower in patients with fibromyalgia than in healthy controls.

CONCLUSION: Decreased levels of collagen cross-linking may contribute to remodeling of the extracellular matrix and collagen deposition around the nerve fibers in fibromyalgia and contribute to the lower pain threshold at the tender points. Analysis of altered collagen metabolism either by histologic examination on biopsy or, preferably, by HPLC analysis of collagen metabolites in urine or serum may aid to understand more about the pathogenesis of fibromyalgia.

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