Is pseudoexfoliation syndrome a risk factor for cardiovascular diseases?

Psödoeksfoliyasyon sendromu kardiyovasküler hastalıklar için bir risk faktörü müdür?

Pseudoexfoliation syndrome (PEX) is an age related, generalized disorder of the extracellular matrix characterized by the multifocal production and progressive accumulation of a fibrillar extracellular material in intra- and extraocular tissue, which is the result of either an excessive production or insufficient breakdown or both (1). PEX was first described in 1917 by a Finnish ophthalmologist J.G. Lindberg. Although it has been known for a near a century, its physiopathology is not known yet. However, it is thought to be a systemic biochemical process (2). Pseudoexfoliation syndrome may affect up to 30% of people older than 60 years (3) and may lead to open angle glaucoma in about half of patients with PEX (4). Diagnosis is done by visualization of the typical dandruff-like material at the papillary margin or the anterior lens surface with slit-lamp biomicroscope.

More than 20 years ago, aggregates of PEX material were identified by electron microscopy in autopsy specimens of heart, lung, liver, kidney, gall bladder and cerebral meninges in 2 patients with ocular PEX (5, 6). In these extraocular locations, PEX material was primarily found in connective tissue portions of visceral organs, often in the periphery of blood vessels, and seemed to originate from connective tissue fibroblasts, smooth and striated muscle cells, and heart muscle cells. These findings suggested that ocular PEX syndrome is part of a general disorder of the extracellular matrix and that patients with PEX may suffer from increased comorbidity.

After these observations, a great interest was born about the extraocular manifestations and physiopathology of PEX. Sensorineural hearing loss was defined and its mechanism is attributed to deposition of exfoliation material in the organ of Corti or its vascular supply (7). Recent studies showed that total antioxidant status in the plasma was decreased (8, 9), serum antiphospholipid antibody levels were elevated, which is a risk factor for cardiovascular and cerebrovascular diseases (10), connective tissue growth factor was increased (11) in patients with PEX. In addition, significant alterations in cardiovagal regulation and impairment of conduit artery function (12), lower ankle brachial index (13), increased concentrations of serum hydroxyproline, which predicts collagen turnover status (14), increased homocysteine levels (15, 16), impaired endothelial functions, and increased carotid intima-media thickness (16) were reported to be associated with PEX.

These accumulating data and the Blue Mountains Eye study (17) suggest an association between, PEX and increased rate of cardiovascular mortality. However this suggestion is not confirmed by other studies (18, 19).

The study on this issue of the Anatolian Journal of Cardiology (20) addresses impairment of aortic functions in patients with PEX. I think it is an important study to understand the coexistence of pathologic manifestations of PEX. We slowly begin to understand single pieces of the whole puzzle by the aid of these studies.

In conclusion, ocular PEX might be an important marker for patients being at risk for cardiovascular and cerebrovascular diseases. However, it may be premature to recommend a general check-up for PEX patients on principle, until results of prospective, randomized, multicenter clinical trials have positively linked PEX with an increased risk for cardiovascular disease.

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