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The role of IL-17A in postmenopausal inflammatory events, such as in osteoporosis

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Postmenopausal women demonstrate increased susceptibility to chronic inflammatory events. Estrogen deficiency increases the production of inflammatory cytokines such as IL-1, IL-6 and tumor necrosis factor- α (TNF α), as well as activates the IL-17 receptor signaling pathway. IL-17 (also known as IL-17A) is a new candidate in the chronic inflammatory diseases, produced by T helper 17 (Th17) lymphocytes and effects on neutrophil recruitment and granulopoiesis. We studied the relationship between IL-17A serum levels and estrogen deficiency, as well as IL-17A-mediated osteoporosis in postmenopausal women. Seventy-two post-menopausal and 22 pre-menopausal women formed the patient groups. Estradiol, osteoprotegerin (OPG), soluble receptor activator of NF- κ B (sRANK) ligand, IL-17A were measured with enzyme-linked immunoassay (ELISA) and dual-energy X-ray absorptiometry (DXA) was carried out. High prevalence of elevated IL-17A serum levels were demonstrated in postmenopausal women compared to premenopausal ones (3.5 ± 0.56 vs 2.88 ± 0.08 ng/ml, $P < 0.0001$). IL-17A levels showed age-related dependency and a remarkable association with the postmenopausal period ($P < 0.05$). Osteoporotic women demonstrated higher IL-17A, OPG and sRANK ligand serum levels than those who had osteopenia (3.65 ± 0.61 vs. 3.31 ± 0.43 ng/ml for IL-17A, $P < 0.007$; 2.88 ± 0.84 vs. 2.49 ± 0.61 ng/mk for sRANK ligand, $P < 0.027$; 1.43 ± 0.07 vs. 1.39 ± 0.07 ng/ml for OPG, $P < 0.038$). IL-17A levels inversely correlated with total lumbar bone mineral densities (BMDs) ($P \leq 0.0008$, $r = -0.279$) and positively with sRANK ligand levels ($P < 0.0001$, $r = 0.387$). The results demonstrated a high prevalence of increased IL-17A serum levels in postmenopausal estrogen deficiency highlighting its role in chronic inflammatory events such as in bone loss and age-related susceptibility to chronic inflammatory diseases.

Biography

Ildikó Molnár MD has completed her PhD at the age of 39 years at the candidate of science course (PhD) of Hungarian Academy of Science. Work and research connected her to Kenézy County and Teaching Hospital from 1977 to 2008. Now she is the chief of EndoMed, Immunoendocrinology, Private Outpatient Clinic from 2008. She is an expert in ELISA, Western and ECL blotting, colorimetric iodine measurement, as well as in allergy testing and bone density measurement with Hologic DEXA. She has published more than 48 papers in reputed journals, 16 chapters and 2 books.

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