**PILOT STUDY OF SEX DIFFERENCES IN CHEMOKINE/CYTOKINE MARKERS OF ATHEROSCLEROSIS IN HUMANS.**

Leung J, Jayachandran M, Kendall-Thomas J, Behrenbeck T, Araoz P, Miller VM.
Department of Surgery, Physiology, and Biomedical Engineering, Mayo Clinic College of Medicine, Rochester

**Background**: Atherogenic processes increase in women after menopause, when the risk of cardiovascular adverse events approaches that observed in age-matched men. In experimental animals, ovariectomy increases the platelet content of mitogenic cytokines, such as platelet-derived growth factor (PDGF), which when released into the blood or site of vascular injury, contribute to atherogenic processes.

**Objective**: Experiments were designed to assess the sex distribution of inflammatorychemokines/cytokines, which may be released from platelets in the serum of middle-aged women and men in whom the extent of atherosclerotic coronary disease was defined by coronary arterial calcification (CAC).

**Method**: Blood was obtained from healthy white individuals recruited from the Mayo Clinic database. CAC was assessed by 64-slice computed tomography. Plasma cholesterol, lipids, and high-sensitivity C-reactive protein were analyzed by the Mayo Clinic Department of Laboratory Medicine and Pathology. Serum cytokines were determined using cytokine arrays. Cytokine expression was measured using dot blot analysis.

**Results**: Of the 16 individuals (11 women, 5 men) who agreed to participate in the study, 1 woman was premenopausal, 1 was taking oral contraceptives, and 1 was receiving menopausal hormone therapy. One woman had an active infection and was eliminated from the study. CAC was detected in only 2 of the 11 women (scores of 46 and 56 Agatston units [AU]) but in 3 of the 5 men (scores of 3, 123, and 609 AU). Correcting for all other risk factors, expression of the chemokine RANTES (regulated on activation, normal, T-cell expressed and secreted; CCL5 [CC chemokine ligand 5]) was 100.98% greater in women than in men, and PDGF-BB was 55.30% greater in women than in men.

**Conclusions**: This small pilot study found that the circulating chemokines/cytokines RANTES and PDGF-BB showed sex-disparate distribution between the women and men studied, and did not appear related to the degree of CAC.