

**CYSTATIN C: CRITICAL PROTEASE INHIBITOR AS A COMPENSATORY MECHANISM IN ATHEROSCLEROSIS DEVELOPMENT.**

Patricia Maldonado Miranda MD. Salvador Rafael Solano Sánchez MD. American British Cowdray Medical Center. Department of Preventive Medicine. Mexico City.

**BACKGROUND:** Cystatin C is normally expressed in vascular wall smooth muscle cells. This cysteine protease inhibitor is severely reduced in atherosclerotic lesions. The protective role of cystatin C in atherosclerosis is dependent primarily on its expression in nonhematopoietic cell types.

**PURPOSE:** To determine if the serum cystatin C in patients with risk factors for the development atherosclerosis is correlated with the plasma HDL cholesterol.

**TYPE RESEARCH:** Clinical Research.

**MATERIAL AND METHOD:** We performed a correlation transversal study with a random simple probabilistic sample. We included all patients older than 35 years who participated in the Check Up study in the ABC Medical Center between March 1, 2005 and March 31, 2006. The parameters that we used were age, gender, history of diabetes, hypertension, cardiovascular or kidney disease, serum cystatin C and plasma lipoproteins (total cholesterol, HDL and LDL cholesterol, and total cholesterol/HDL cholesterol ratio). The sample size was computed by the correlation coefficient method: Effect size  $r= 0.3$ ,  $\alpha=0.05$  and  $\beta= 0.20$ . We used the multivariate Pearson correlation statistical technique.

**RESULTS:** We found a significant correlation between serum cystatin C and HDL cholesterol ( $r=-0.223$ ) and determined that minor plasma HDL cholesterol was associated with major serum cystatin C and vice versa.

**CONCLUSION:** Cystatin C, a protease inhibitor, acts as a protective factor against the development of atherosclerosis. It serves as a compensatory mechanism for decreased plasma HDL cholesterol that is part of the pathogenesis of this entity.

**Keyword:** Cystatin C, Protease inhibitor, Atherosclerosis