

**[P1-338] The Relationship between Sex Hormones, Sex Hormone Binding Globulin and Peripheral Artery Disease in Older Persons**

**C Cattabiani, G Ceda, F Lauretani, S Bandinelli, G Schiavi, A Vignali, R Volpi, G Ceresini, A Artoni, L Ferrucci, M Maggio. University of Parma, Parma, Italy; University Hospital, Parma, Italy; Azienda Sanitaria Firenze, Florence, Italy; National Institutes of Health (NIH), Baltimore, MD.**

Peripheral artery disease (PAD) is an important and multi-factorial condition in older individuals. The prevalence of PAD increases with age and concurs to the development of frailty and disability. Fewer investigations have assessed the role of sex hormones and sex hormone binding globulin (SHBG) in PAD(1-2).

**Aim of the Study.** To test the association between sex hormones, SHBG and lower extremity PAD in the elderly.

**Methods.** 933 older men and women with complete data on SHBG, total testosterone (T) were selected from the InCHIANTI study. SHBG and T were measured using immunoradiometric assay with minimum detectable concentration (MDC) of 3.0 nmol/lit and 0.08 nmol/lit, respectively. The inter- and intraassay CV concentrations were < 3.7, and 11.5 for SHBG and < 9.6 and 9.1, for T. Total Estradiol (E2) was measured using ultrasensitive radioimmunoassay with a MDC of 2.2 pg/mL and intra- and interassay CVs <10%,. The Ankle-Brachial Index (ABI) was measured with a hand-held Doppler stethoscope. PAD was defined as an ABI <0.90 and absence of PAD by ABI > 0.90. Logistic regression models adjusted for age (Model 1),for age, BMI, interleukin-6, physical activity, smoking, hypertension, diabetes, chronic heart failure,HDL-cholesterol (Model 2) and Model 3 including also T, SHBG and total E2 were used to test the association between SHBG, sex hormones (predictors) and PAD (outcome).

**Results.**The mean age  $\pm$  SD of the 933 (419 men and 514 women) subjects at baseline was  $71.8 \pm 4.9$  years (  $74.2 \pm 6.5$  in men and  $75.6 \pm 7.0$  in women).64 (43 men and 21 women) participants had ABI <0.90 and 869 participants ABI > 0.90. Only in men, SHBG was positively associated with PAD in both Model 1 (OR: 3.24, CI 1.46-7.18, p= 0.0038) and Model 2 (OR 3.58, CI 1.36-9.40, p=0.009), while this relationship did not reach the statistical significance in Model 3 (p=0.06).

Total E2 was not significantly associated with PAD in both men (p=0.68) and women (p=0.21). In women, T was positively associated with PAD, in Model 1 (OR 5.93, CI 1.29-27.11, p=0.02) ,Model 2 (OR 1.72, CI 0.99-2.97, p=0.053), and this relationship was still significant in Model 3 (OR 2.048, CI 1.13- 3.72, p=0.01). In contrast, in men, T was not independently associated with PAD.

**Conclusion**

Higher SHBG and T are significantly associated with PAD in older men and women, respectively. Further longitudinal studies are needed to address the role of SHBG and T in the development of PAD in the elderly.

1. Price JF, Lee AJ, Fowkes FG. Steroid sex hormones and peripheral arterial disease in the Edinburgh Artery Study. *Steroids* 1997;62: 789-94.
2. Tivesten A, Mellström D, Jutberger H, Fagerberg B, Lernfelt B, Orwoll E, Karlsson MK, Ljunggren O, Ohlsson C. Low serum testosterone and high serum estradiol associate with lower extremity peripheral arterial disease in elderly men. The MrOS Study in Sweden.*J Am Coll Cardiol.* 2007 Sep 11;50(11):1070-6.

**Sources of Research Support:** The InCHIANTI Study was supported as a "targeted project" (ICS 110.1/RS97.71) by the Italian Ministry of Health and in part by the U.S. National Institute on Aging (Contracts N01-AG-916413 and N01-AG-821336) and by the Intramural Research Program of the U.S. National Institute on Aging (Contracts 263 MD 9164 13 and 263 MD 821336).

**Nothing to Disclose:** CC, GC, FL, SB, GS, AV, RV, GC, AA, LF, MM

**Date:** Saturday, June 4, 2011

**Session Info:** POSTER SESSION: CLINICAL - Male Reproductive Endocrinology I (1:30 PM-3:30 PM)

**Presentation Time:** 1:30 pm

**Room:** Expo

**Embargo Policy**

Unless otherwise noted, all abstracts presented at ENDO are embargoed until the date and time of presentation. Abstracts presented at a news conference are embargoed until the date and time of the news conference. The Endocrine Society reserves the right to lift the embargo on specific abstracts that are selected for promotion prior to or during ENDO.

**Disclaimer Statement**

The information presented at ENDO news conferences and within the Research Summaries Book represents the opinion of the presenters and authors and is not necessarily the view of The Endocrine Society. The Endocrine Society makes no representation as to the truth or warranty, accuracy, or originality of the information presented.

*For additional information, please contact The Endocrine Society's Public Affairs Department at 301-941-0240 or [ariskind@endo-society.org](mailto:ariskind@endo-society.org).*

[Close Window](#)