

# Do Vascular Risk Factors Correlate with Penile Duplex Parameters?

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## Introduction

Erectile dysfunction (ED), as mostly vasculogenic in nature, correlates with cardiovascular risk factors, being endothelial dysfunction the common link. In this study we evaluate the impact of vascular risk factors, including metabolic syndrome (MetS), on penile duplex parameters in men with ED.

## Material and Methods

Eighty six consecutive patients referred to a Unit of penile Doppler ultrasound were evaluated for the presence of cardiovascular risk factors and MetS criteria as defined by the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults; Adult Treatment Panel III (ATP III, 2001). Body Mass Index (BMI) was calculated. Each patient underwent a penile duplex Doppler ultrasound study after injection of intracavernous prostaglandin E1 to assess penile blood flow parameters. The rates of arterial insufficiency, venoocclusive dysfunction, mixed vascular disease and non vascular etiologies were evaluated along with peak systolic velocities. All the exams were performed by the same physician. Data are expressed as mean  $\pm$  SD, and statistical significance was assumed at P-level  $< 0,05$ . Statistical analysis of clinical, laboratory, and penile duplex parameters was performed with SPSS® 14.0 software for Windows.

## Results

Mean age, BMI and abdominal waist was 55.35  $\pm$  11.8 years, 27.7  $\pm$  3.9 Kg/m<sup>2</sup> and 99.4  $\pm$  11.1 cm, respectively. Obesity (BMI  $\geq$  30,0kg/m<sup>2</sup>), diabetes, hypertension (HPN) and hypercholesterolemia was identified in 21%, 23.1%, 40.5% and 41.7% of patients, respectively. MetS was present in 20.9% of men. Penile doppler ultrasound revealed normal results in 23.3%, arterial insufficiency in 62.8% and venoocclusive dysfunction in 14% of the sample. Mean peak systolic velocity was 33.5 cm/s. Age, obesity and HPN were inversely correlated with peak systolic velocities ( $P < 0,05$ ). Tobacco abuse, hypercholesterolemia and diabetes were also inversely correlated with peak systolic velocity but did not reached statistic significance. Age and, for all the criteria for MetS, HPN and abdominal waist were significantly associated in a multivariate analysis with diminished systolic velocities as independent clinical factors.

## Conclusions

Our findings confirm the high prevalence of vascular risk factors and MetS in patients with ED. Aging, visceral adiposity and HPN are the only vascular risk factors statistically significant to be associated with altered penile hemodynamics, presenting poorest peak systolic velocities, and are independent clinical factors for vasculogenic ED.