Measurement of testis volume (TV) is a reliable clinical procedure that predicts reproductive fitness. However, the role of TV in overall and cardiovascular (CV) fitness has never been studied.

The aim of this study is to analyze the clinical correlates of TV in patients with sexual dysfunction (SD) and to verify the value of this parameter and its determinants (i.e., luteinizing hormone [LH] levels) in predicting major adverse CV events (MACE).

Materials and Methods

This is an observational prospective cohort study considering a consecutive series of 2,099 subjects without testicular atrophy (age 50.2 ± 13.1) enrolled in a longitudinal study. Several clinical and biochemical parameters were investigated.

Results

After adjusting for confounders, TV was negatively associated with both LH (Adj. r = -0.234; P < 0.0001) and follicle-stimulating hormone (Adj. r = -0.326; P < 0.0001). In addition, overweight/obesity, smoking, and alcohol abuse increased as a function of TV (hazard ratio [HR] = 1.041 [1.021–1.061], P < 0.0001; 1.024 [1.005–1.044], P = 0.012; 1.063 [1.015–1.112], P = 0.006, respectively). Furthermore, mean blood pressure was positively related to increased TV (Adj. r = 0.157; P < 0.0001). The effect of these lifestyle factors on TV were only partially related to changes in gonadotropins levels. In the longitudinal analysis, after adjusting for confounders, TV was associated with a higher incidence of MACE (HR = 1.666 [1.015–2.202], P = 0.044), and the stepwise introduction in the Cox model of lifestyle factors, mean blood pressure and body mass index progressively smoothed out the association, which was no longer statistically significant in the fully adjusted model. Conversely, the association of higher LH levels with increased incidence of MACE was not attenuated by the progressive introduction of the aforementioned confounders in the model.

Conclusions

Our data show that in SD subjects, TV and LH are associated with an adverse CV risk profile that mediate the higher TV-associated incidence of MACE. High LH levels are an independent marker of CV risk. Further studies are needed for clarifying determinants and mechanisms of testis enlargement that, beyond gonadotropins, could mediate the increased incidence of MACE.