



Clinical Significance of Low Blood Testosterone Concentration in Men as a Cardiovascular Risk Factor From the Perspective of Blood Rheology

Background

Recent clinical studies have indicated the importance of low blood testosterone concentration or whole blood passage time (WBPT) which reflects blood rheology as a cardiovascular risk factor. On the contrary, there are no reports regarding the association of blood testosterone concentrations and WBPT. This cross-sectional study aimed to elucidate the clinical significance of low blood testosterone concentration in men as a cardiovascular risk factor from the perspective of blood rheology using WBPT.

Methods

In total, 382 male patients with traditional cardiovascular risk factor and no history of cardiovascular disease (age (mean \pm standard deviation (SD)), 64 ± 10 years) were enrolled. Serum total testosterone concentration (T-T) was measured as a marker of testosterone level in vivo, and WBPT was also measured using microchannel array flow analyzer as a commercial device. The relationship between T-T and WBPT was evaluated.

Results

There was a significantly negative correlation between T-T and WBPT ($r = -0.45$; $P < 0.001$). Furthermore, multiple regression analysis revealed that T-T ($\beta = -0.25$; $P < 0.001$) could be selected as an independent variable when WBPT was used as a subordinate factor. According to receiver operating characteristic curve analysis and the result of the previous report that determined WBPT of > 72.4 s as a risk for incidence of primary cardiovascular disease, T-T of < 551.4 ng/dL is the optimal cut-off point for discriminating high WBPT.

Conclusions

The study results showed that T-T is independently and inversely associated with WBPT in male patients with traditional cardiovascular risk factor and no history of cardiovascular disease. In addition, this study suggests that the incidence of primary cardiovascular events can be prevented by maintaining T-T at approximately ≥ 550 ng/dL from the perspective of blood rheology.

[Read the full study.](#)