

Association Between Low Testosterone and Graft Dysfunction Early After Heart Transplantation: results from cross-sectional study

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OBJECTIVES

An inverse relation was found between testosterone and vasculopathy of the allograft in heart transplanted men. We evaluated the correlation between serum testosterone levels and graft function early after heart transplantation.

METHODS

In a cross-sectional study serum total testosterone levels prior to hospital discharge (19 ± 3 postoperative day) was determined in 49 consecutive male patients who underwent heart transplantation between 2009 and 2013. Assessment of left ventricular ejection fraction (LVEF), tricuspid annular plane systolic excursion (TAPSE) and left ventricular hypertrophy (LVH) by echocardiography was performed in all subjects. Low serum testosterone was defined as <11 nmol/L. LVH was defined as left ventricular wall thickness $>1,1$ cm. All patients received standard immunoinduction and maintenance immunosuppression therapy.

RESULTS

Low testosterone was present in 21 (43%) (Group A), and normal in 27 (57%) patients (Group B). The prevalence of osteoporosis was significantly higher in Group A compared to Group B (90% vs 60%, $p=0.02$). The two groups did not differ in age (58.7 ± 7.2 years in Group A vs. 54.3 ± 11.9 years in Group B), the presence of renal dysfunction, arterial hypertension, diabetes or hyperlipidemia, time of hospital discharge, donor age and allograft ischemic time. Both groups had comparable mean tacrolimus trough levels, dose of mycophenolate and methylprednisolone. However, before discharge, patients in Group A had significantly lower LVEF ($60 \pm 4.8\%$ vs. $63.3 \pm 5.8\%$ vs. Group B, $P=0.04$) and TAPSE (1.3 ± 0.3 cm vs. 1.6 ± 0.3 cm in Group B, $P=0.03$). The prevalence of LVH did not differ between the two groups. Before discharge, more patients in Group A were found to have low grade rejection (15% vs. 0% in Group B; $P=0.03$).

CONCLUSIONS

Low testosterone appear to be associated with inferior graft function and increased incidence of rejection early after heart transplantation. Immunomodulatory role of testosterone remains to be further elucidated.