

Hypothalamic-Pituitary-Testes Axis Function After Kidney Transplantation in Men

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INTRODUCTION and OBJECTIVES

Testosterone deficiency (TD) is a prevalent condition in men with chronic kidney disease or end-stage-renal-disease. Experimental and clinical evidence demonstrated that TD in hemodialysis patients is associated with increased mortality risk. However, although abnormalities in the hypothalamic-pituitary-testis axis (HPT) during chronic renal failure are well recognized, discordant data are available after kidney transplantation (TX).

THE OBJECTIVE OF THE STUDY WAS TO EVALUATE THE LEVELS OF SERUM GONADOTROPINS (FSH, LH) AND TOTAL TESTOSTERONE (TT) IN PATIENTS AFTER TX AND THE ASSOCIATIONS BETWEEN SEX HORMONES AND RENAL FUNCTION (EGFR, CKD-EPI), ANEMIA AND IMMUNOSUPPRESSIVE REGIMENS.

METHODS

95 male patients aged between 26 and 73 were enrolled. All patients were on maintenance, combined immunosuppressive therapy stable for at least 6 months. All patients were in therapy with corticosteroids and no one on testosterone replacement therapy. TD was defined as TT < 350 ng/dL. Anemia was defined as hemoglobin < 12.5 g/dl or need for Epo treatment.

RESULTS

Median TT levels were 340 ng/dL (IQR 270-420) and 49 (52.1%) patients showed TD. Median FSH and LH were respectively 6.0 UI/L (4.1-13.3) and 5.4 UI/L (3.4-8.0). Significant correlations were found between TT and FSH ($r=-0.36$, $p<0.001$, Figure 1A) as well as LH and FSH ($r=0.69$, $p<0.001$, Figure 1B). On the other hand, no significant correlations were found between TT, gonadotropins and age, time from TX or ESRD duration.

Patients with TD have significantly lower eGFR (23.6, IQR 6.1-47.2) than those with normal TT levels (34.6, IQR 16.2-61.7, $p=0.009$, Figure 2A). Furthermore, anemic patients have lower TT levels (3.0, IQR 1.1-3.5) than non-anemics (3.7, IQR 3-4.5, $p=0.003$, Figure 2B).

Looking at immunosuppression therapy, patients on Calcineurin inhibitors (CsA or FK) presented significantly higher TT (3.5, IQR 2.9-4.3) than those on other therapy regimens (2.3, IQR 2.1-2.9, $p=0.003$), but no differences were found between patients on CsA versus FK.

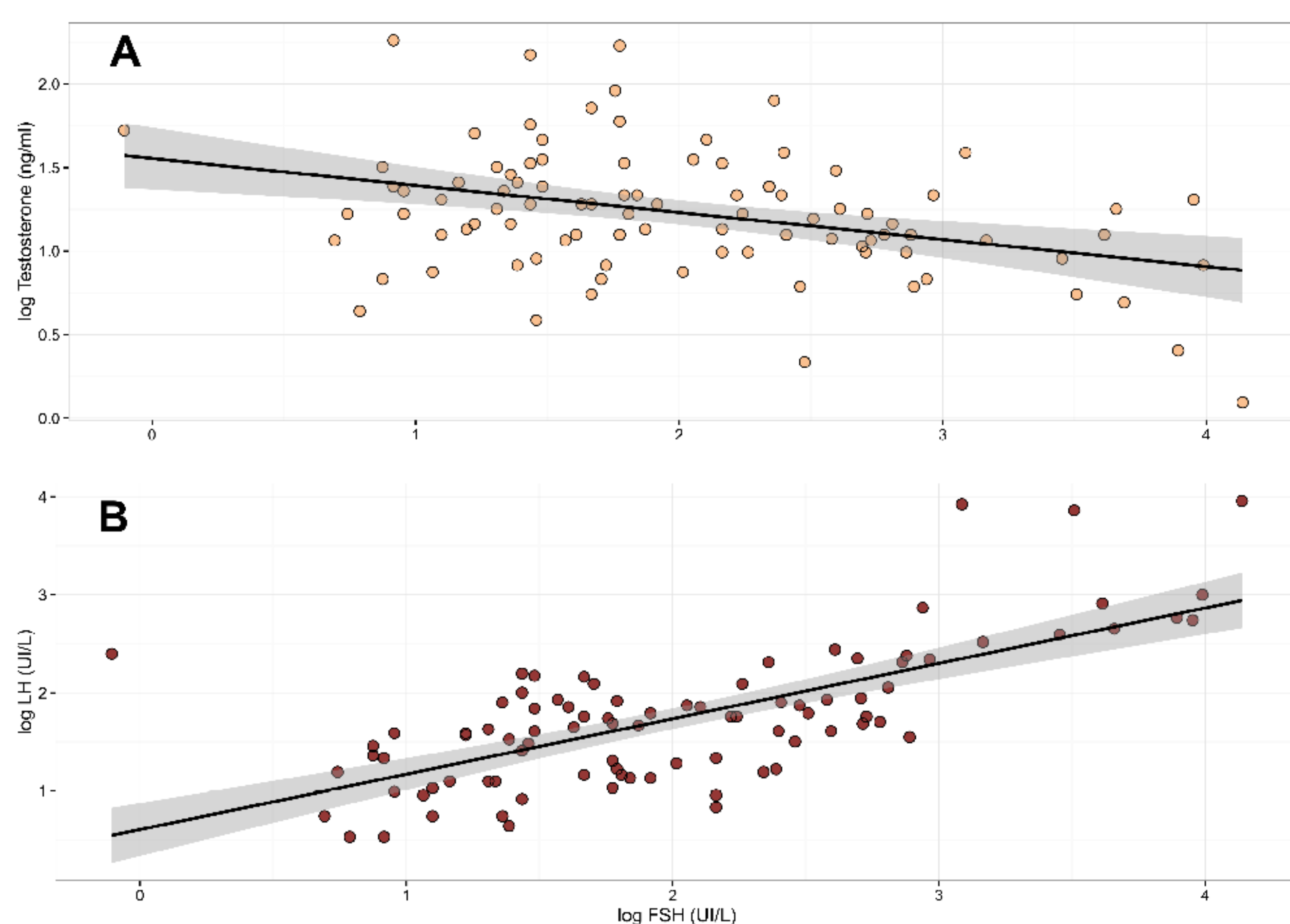


Figure 1. Linear regression between FSH vs Testosterone levels (A) and FSH vs LH levels (B)

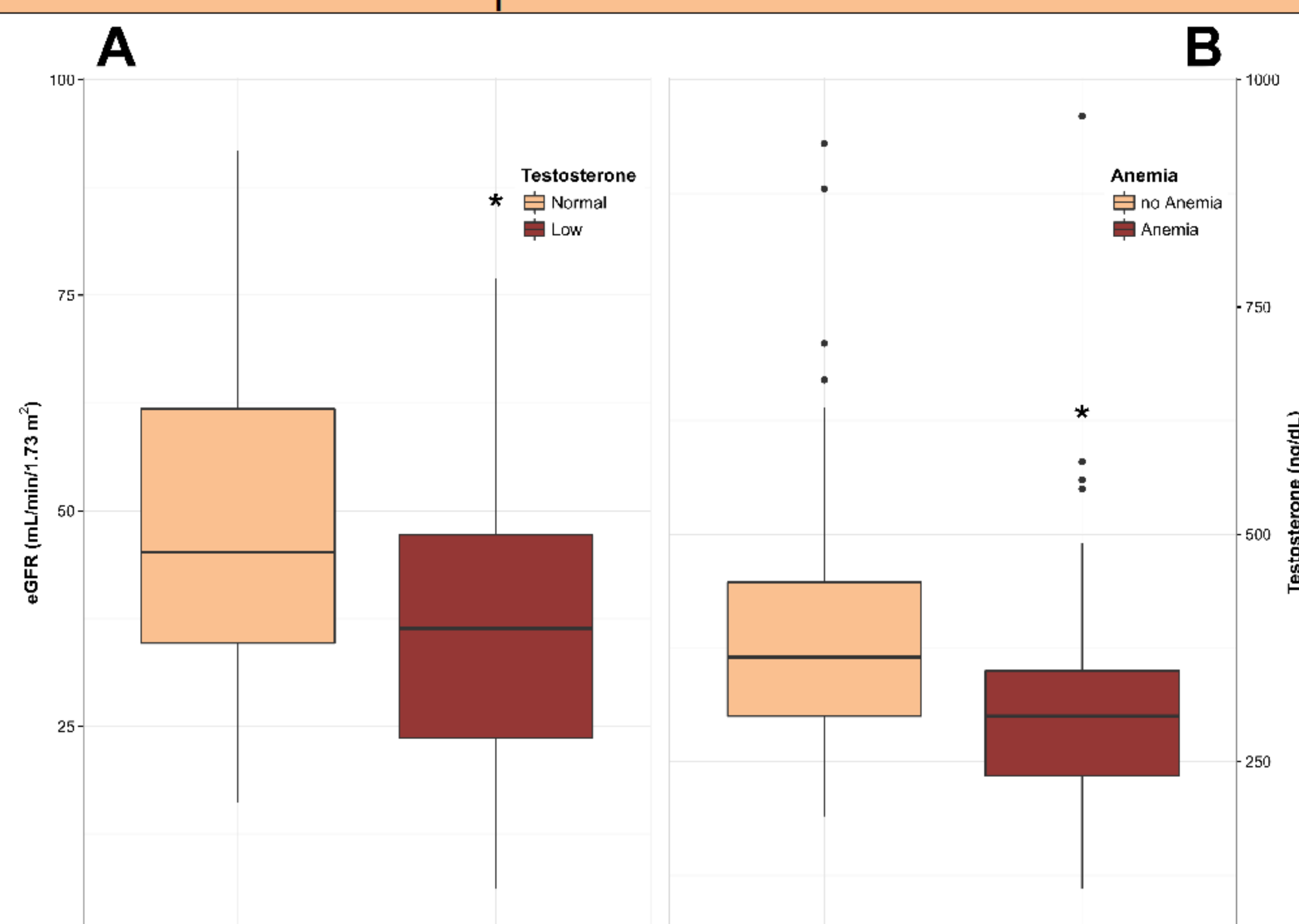


Figure 2. eGFR levels by serum Testosterone (A) and serum Testosterone levels by Anemia status (B).

CONCLUSIONS

OUR RESULTS SUGGEST THE EXISTENCE OF A HIGH PREVALENCE OF HPT AXIS ABNORMALITIES IN RENAL TX RECIPIENTS.

THIS GONADAL DYSFUNCTION IS PROBABLY MULTIFACTORIAL, BUT E THE EVIDENCE OF TD AS A CARDIOVASCULAR RISK FACTOR, IT IS STILL UNKNOWN ITS ROLE IN THE RENAL TRANSPLANTATION FUNCTION AND SURVIVAL.

REFERENCES

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