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Steroid withdrawal in pediatric kidney transplant allows better growth, lipids and body composition: a randomized controlled trial.

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Abstract

BACKGROUND: Glucocorticoid immunosuppressant therapy in pediatric kidney transplant (Tx) recipients does not allow the improvement of growth after Tx.

OBJECTIVE: To determine the effect of early steroid withdrawal (SW) on longitudinal growth, insulin sensitivity (IS), and body composition (BC).

METHODS: This was a prospective, randomized, multicenter study in Tx. Insulin-like growth factor (IGF)-I, IGF-binding protein 3 (IGFBP3), IS, and BC (DEXA/pQCT) were determined at baseline and up to 12 months after Tx.

RESULTS: A total of 30 patients were examined; 14 patients were assigned to the SW group (7 male, 7 female; 12 in Tanner stage I) and 16 patients were assigned to the steroid control (SC) group (10 male, 6 female;12 in Tanner stage I). Their chronological age was 7.8 ± 4.3 years, height was -2.3 ± 0.99 SD scores (SDS), and body mass index -0.3 ± 1.2 SDS. After 1 year, the SW group showed an increase in height SDS (+1.2 ± 0.22 vs. +0.60 ± 0.13 SDS in the SC group, $p < 0.02$), lower IGFBP3 ($p < 0.05$), cholesterol ($p < 0.05$), and higher high-density lipoprotein cholesterol ($p < 0.05$). SW patients had lower trunk fat with no differences in IS. Only in prepubertal patients, the SW group had lower glycemia ($p < 0.05$), very low-density lipoprotein cholesterol ($p < 0.01$), triglycerides ($p < 0.05$), triglycerides/glycemia index (TyG; $p < 0.02$), and better lean mass. Both groups showed an improvement in lean mass after kidney Tx.

CONCLUSIONS: SW improved longitudinal growth, lipid profile, and trunk and lean fat in Tx patients. In prepubertal recipients, the decrease in TyG suggests better IS.