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Parathyreoidektomie bei Kindern mit chronischer Niereninsuffizienz: Einfluss auf Parathormon und den Calcium-Phosphathaushalt im Langzeitverlauf

Promotionsfach: Kinderheilkunde

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Bone and mineral disorder is a challenging complication in children with chronic kidney disease. It not only results in uremic osteodystrophy, bone pain and bone deformities in a substantial number of patients but substantially contributes to cardiovascular calcifications and thus reduced long-term survival. Therefore, achievement of target range plasma PTH and mineral electrolyte concentrations allowing appropriate bone turn over and avoiding extraosseous calcifications are of utmost importance.

In this work, we provide first a comprehensive analysis of the acute and long-term outcome in 18 children who underwent PTX due to uremic HPT refractory to pharmaceutical and dietary treatment.

Our analysis demonstrates that total PTX with autotransplantation of parathyroid tissue fragments allows for excellent long-term control of PTH and calcium-phosphate homeostasis in children with secondary HPT refractory to conservative measures. Subsequent NTX results in an additional and persistent decline in serum PTH and Ca*Phos product into the individual, CKD specific target range. Radiological and clinical signs of bone disease improved. In addition, PTX had a beneficial effect on anemia; serum haemoglobin levels improved 12 months after PTX.

PTX did not affect the acid base homeostasis and systolic and diastolic blood pressure in our experience. The operative success rate was high (17/18), complications occurred in 3 out of the 18 operations.

In conclusion, this study in children with CKD for the first time demonstrates that parathyroidectomy with autotransplantation of parathyroid tissue allows for excellent long-term control of hyperparathyroidism and calcium-phosphate metabolism, in particular in combination with NTX, and may thus improve uremic bone disease and mitigate cardiovascular sequelae.