Efficacy of Growth Hormone Treatment in Patients with type 1 Diabetes mellitus and Growth Hormone Deficiency

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Background: The combination of type 1 diabetes mellitus (T1DM) and growth hormone (GH) deficiency is uncommon. In a previous study we found in children with T1DM and GHD that with adequate adaptation of insulin dosage, metabolic control of T1DM did not worsen during GH treatment. However, decreased catch-up growth was observed and no data on GH dose was available (Bonfig et al, J Pediatr 2013).

Objective: To analyze first treatment year growth response and GH dosage in prepubertal patients with T1DM and GHD and to compare these data with a large control cohort within the KIGS® database.

Results: Patients with T1DM and GH deficiency have no difference in:
- age at start of GH treatment
- corrected height-SDS at start of treatment
- GH dosage at start of therapy
- first year growth response/growth velocity

They are different from the GHD controls in that they:
- have higher birth weight than controls
- are heavier at start of GH treatment
- have a higher mean/median GH dose after first treatment year

Height gain: Median height SDS of children with T1DM and GHD improved from -2.62 (mean -2.58, SD 1.04) to -1.88 (mean -1.90, SD 1.11)

Safety:
-10 adverse events (AEs) not related to GH treatment – all patients recovered
-3 adverse events (AEs) related to T1DM (nephropathy, retinopathy and hypoglycemia & worsening metabolic T1DM control); only worsening of glycaemic control was attributed to GH treatment and GH dose was reduced by the caring physician.
-1 serious adverse event (SAE): acute pancreatitis with hospital admission not related to GH treatment as reported by the KIGS investigator. The patient fully recovered.

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