hormone stimulation test was unaffected. Using normative dataset B, 6 patients displayed a pattern associated with a possible growth hormone resistance, or of bio-inactive growth hormone syndromes, which based on its incidence would be unlikely for a secondary care setting. A striking observation was however, that of all patients with a normal stimulation test 9 (E)/16 (B) or 30 (NL) had a IGF-1 Z-score of > 0 SD. This implies that, for the diagnosis of growth hormone deficiency, it is safe to implement the Dutch harmonized dataset, which in addition could result in a reduction in the number of growth hormone stimulation tests that have to be performed.

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GROWTH AND GROWTH HORMONE

Long-Term Effect of Aromatase Inhibition in Aromatase Excess Syndrome

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Aromatase excess syndrome (AEXS) is a very rare disorder characterized by prepubertal gynecomastia, bone age acceleration and early growth arrest. Heterozygote submicroscopic rearrangements within the promotor of *CYP19A1* result in overexpression of aromatase and enhanced aromatization of androgens. Long-term treatment effects of aromatase inhibitors are unknown. Retrospectively we collected data from file records of 7 boys (three sibling pairs and one sporadic case) with AEXS. Genetic analysis revealed upstream of *CYP19A1* a 165,901 bp deletion in 4 German cousins, a 198,662 bp deletion in 2 Japanese brothers and a 387,622 bp tandem duplication in a Japanese boy. All boys developed prepubertal gynecomastia, at 9.0 yr of age (median; range: 7.0 - 11.0). Height was +1.20 SDS (-0.24 - +1.98); predicted adult height was -1.29 (-3.29 - +1.09 SDS). Four boys were treated with anastrozole 1.0 mg daily, while three reached adult height untreated. Treatment with anastrozole was stopped after 5.6 yr (4.0 - 6.8). Three treated boys exceeded height prognosis by 2.4, 6.9 and 8.1 cm; while one untreated fell below prognosis by 8.6 cm. One treated with a low dose and two untreated reached their prognosis. Adult heights were -0.91 SDS with anastrozole (-2.86 - -0.29) and -0.15 SDS without (-2.31 - -0.03). Distance to target height was -0.22 SDS with anastrozole (-1.72 - +0.52) and +0.54 SDS without treatment (+0.23 - +1.30). Spontaneous growth in AEXS varied, even in the same family. Our data suggest that early started, long-term inhibition by aromatase inhibitor anastrozole (1 mg daily) promotes adult height in boys with AEXS.

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Long-Term Growth Hormone Therapy Does Not Advance Skeletal Maturation in Children and Adolescents

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Context: There is no consensus on the effect of recombinant human growth hormone (rhGH) therapy on skeletal maturation in children despite the current practice of annual monitoring of skeletal maturation with bone age in children on rhGH therapy. **Aims:** To investigate the effects of long-term rhGH therapy on skeletal age in children and explore the accuracy of bone age predicted adult height (BAPAH) at different ages based on 13 years of longitudinal data. **Methods:** A retrospective longitudinal study of 71 subjects aged 2-18 years, mean 9.9 ± 3.8y, treated with rhGH for non-syndromic short stature for a duration of 2-14y, mean, 5.5 ± 2.6y. Subjects with syndromic short stature and systemic illnesses such as renal failure were excluded. **Results:** Bone age minus chronological age (BA-CA) did not differ significantly between baseline and the end of rhGH therapy (-1.05 ± 1.42 vs -0.69 ± 1.63, p=0.09). Piece-wise regression however showed a quantifiable catch-up phenomenon in BA of 1.6 months per year of rhGH therapy in the first 6.5y, 95%CI 0.023 - 0.229, p=0.017, that plateaued thereafter, β=0.015, 95% CI -0.191-0.221, p=0.88. There was no relationship between BAPAH z score – height z score and the duration of rhGH therapy, p=0.68. BAPAH overestimated final adult height in younger subjects but became more precise in older subjects (p<0.0001). **Conclusion:** Long-term rhGH therapy demonstrated an initial catch-up phenomenon in skeletal maturation in the first 6.5y that plateaued thereafter with no overall significant advancement in bone age. These findings are reassuring and do not support the practice of yearly monitoring of skeletal maturation with bone age in children on rhGH therapy, especially in younger subjects where BAPAH is imprecise.

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LUM-201 Elicits Greater GH Response than Standard GH Secretagogues in Pediatric Growth Hormone Deficiency

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Presentation Type: OralScience Type and Topic: Clinical Trial **Introduction:** LUM-201 (ibutamoren, formerly MK-0677) is an orally administered GH-secretagogue that stimulates the GH secretagogue receptor (GHSR1a) in the hypothalamus and pituitary. LUM-201 is in development for long-term use in a subset of PGHD patients with moderate growth deficiencies. A diagnosis of PGHD is confirmed by low GH responses to standard GH secretagogues (clonidine, arginine, L-dopa, glucagon, insulin) so it is