Economic Burden of Growth Hormone Deficiency in a US Pediatric Population

Background
Pediatric GHD is a disorder of short stature that is currently treated with daily injections of somatropin. In addition to short stature, GHD is associated with other comorbidities such as impaired musculoskeletal development, cardiovascular disease, and decreased quality of life.

Our objective was to analyze somatropin utilization, adherence, and healthcare costs among children with GHD who had either Medicaid or commercial health insurance.

This study fills the current gap in knowledge of real-world evidence on the clinical and economic burden of pediatric GHD among patients in the U.S.

Methods
Retrospective observational cohort design within the IBM® MarketScan® Commercial Claims and Encounters Database and the MarketScan Medicaid Multi-State Database.

Children (age <18 years) diagnosed with GHD between Jan. 1, 2008 and Dec. 31, 2017 were matched (1:3) to controls without GHD (or other short stature-related disorder) on age, gender, plan type, region, and race (Medicaid only). Index date was set to the date of the first GHD diagnosis during the selection window for GHD patients and set randomly for controls.

Results
A total of 14,070 commercial patients and 8,820 Medicaid patients with GHD were included in the analysis. Compared to controls, patients with GHD had higher healthcare costs, poorer adherence, and more comorbidities.

Adherence (proportion of days covered) was low: 24.3% of commercial patients and nearly half (49.1%) of Medicaid patients. Treatment adherence may reduce the healthcare burden faced by these young patients.

Unadjusted annual all-cause healthcare costs were 16.7 times greater ($37,392) for commercial GHD patients and 10.8 times greater ($33,850) for Medicaid GHD patients compared to controls, including somatropin costs.

Adjusted* all-cause non-somatropin costs were 5.5 times higher ($18,129) for commercial patients and 5.7 times higher ($19,309) for Medicaid patients than matched non-GHD controls. Adjusted all-cause non-somatropin costs were 31% lower ($27,650) for treated commercial patients and 41% lower ($14,416) for treated Medicaid patients than for untreated patients. Annual all-cause costs were positively associated with GHD-related conditions including endocrine-related conditions, pulmonary conditions, cardiovascular disease, hepatic conditions, metabolic conditions, anxiety, depression, and sleep disorders.

Summary
Pediatric GHD presents a significant healthcare burden, and many patients remain untreated or undertreated.

Unadjusted GHD was associated with higher non-somatropin healthcare costs compared to controls. Somatropin adherence may reduce the healthcare burden faced by these patients.

Conclusions
This study was sponsored by Ascendis Pharma Endocrinology Division A/S. Not for use in commercial medical publications. Paul Kaplowitz is a paid consultant of Ascendis Pharma. Joe A. Gonzalez and Cynthia D. Morrow, PhD, MA are employed by Ascendis Pharma Inc. Janna Manjelievskaia, Lorena Lopez are employed by Ascendis Pharma Inc. Palo Alto, CA, USA.

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