

Effects of 8 years of growth hormone treatment on scoliosis in children with Prader-Willi syndrome

<https://pubmed.ncbi.nlm.nih.gov/33886496/>

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PMID: 33886496

DOI: [10.1530/EJE-21-0211](https://doi.org/10.1530/EJE-21-0211)

Abstract

Objective: Scoliosis is frequently seen in children with Prader-Willi syndrome (PWS). There is still concern that growth hormone (GH) treatment might increase the risk of onset or progression of scoliosis. Short-term data suggested no adverse effects of GH on scoliosis, but long-term effects of GH treatment on development of scoliosis in PWS are unknown. This study investigated the effects of 8 years of GH treatment on scoliosis in children with PWS.

Design: Open-label, prospective cohort study in 103 children with PWS receiving GH for eight years. Prevalence and severity of scoliosis were compared to a group of 23 age-matched GH untreated children with PWS.

Methods: Spine X-rays and DEXA-scans were performed, and Cobb angle was measured by two independent observers.

Results: After 8 years of GH treatment, at median age of 10.8 years, prevalence of scoliosis was 77.7%. No difference in prevalence or severity of scoliosis was found between GH-treated and age-matched untreated children with PWS ($P=0.409$ and $p=0.709$, respectively). Height SDS and trunkLBM were significantly higher in GH-treated children. Higher bone mineral density of the lumbar spine was found in children without scoliosis after 8 years of GH. Bone mineral apparent density of lumbar spine (BMADLS) SDS was associated with lower Cobb angle ($r=-0.270$, $p=0.008$).

Conclusions: Eight years of GH treatment has no adverse effects on prevalence and severity of scoliosis in children with PWS until 11 years of age. As BMADLS SDS is inversely associated with Cobb angle, it is pivotal to optimize BMD-status in children with PWS.