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Arch dimensional changes in children with idiopathic short stature treated with recombinant growth hormone: a five-year study

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ABSTRACT

Recombinant human growth hormone (rhGH) increases stature when administered to non-GH-deficient idiopathic short statured children. The aims of this investigation were to determine pretreatment arch dimensions of short statured children (height ≥ 2 S.D. below mean for age) and to evaluate their response to rhGH administration by measuring arch-dimensional changes over 5 years of rhGH treatment. Dental casts of 28 short subjects (22 male, 6 female) and of age/gender-matched controls of normal stature were analyzed using a digital imaging system. Four measures of arch width and one of arch depth were calculated for each maxillary and mandibular cast. Subjects receiving orthodontic care were eliminated from the study at the initiation of treatment. Z-scores were calculated to allow for pooling of data.

Prior to rhGH treatment, all arch dimensions of the short statured subjects were smaller than the controls, with the exception of mandibular arch depth. Arch dimensions of the rhGH subjects did increase with the continued administration of rhGH. The control group also showed a significant trend for the arch dimensions to increase over time. The influence of rhGH treatment on arch dimensional changes over time remains equivocal based on the results of this investigation.

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KEY WORDS: Arch dimensional changes, Idiopathic short stature, Recombinant human growth hormone, Children, Craniofacial growth.