Medical Xpress

Predicting growth hormone treatment success

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Growth hormone treatments work better on some children than on others, but judging which candidates will gain those vital inches in height is no simple task. Now researchers have developed a new mathematical model which predicts the optimal dose of growth hormone to treat children who are abnormally short for a wide range of reasons.

A study published in the online open access journal *BMC Medical Informatics and Decision Making* describes a model that can be more widely applied than previous versions, with greater predictive accuracy.

Jovanna Dahlgren and colleagues at Gothenburg University in Sweden analysed data from 415 short prepubertal children who had undergone GH treatment to develop a model that predicts an individual's response.

The team gathered data including the children's length and weight at birth, height before and during treatment and their parents' height. The model was then validated by applying it to a group of 112 different children. The model's accuracy was substantially improved by including data on blood levels of growth hormone and other growth-related hormones, such as insulin-like growth factors and leptin.

Dr Dahlgren states, "The models presented serve as a practical clinical tool for selecting children for successful growth hormone treatment ... and provide the highest prediction accuracy available."

Growth hormone treatments are expensive, involve daily injections, and

are associated with the risk of overdose. To assess whether growth hormone treatment would be appropriate for a particular child, an accurate prediction of how much growth would result from the treatment is crucial. This new research will help clinicians determine the children most likely to benefit from treatment, and the most appropriate dose.

Source: BioMed Central

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