

Inhaled growth hormone safe for children deficient in this key protein

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Emily Walvoord, M.D. is an associate professor of clinical pediatrics at the Indiana University School of Medicine and Riley Hospital for Children pediatrician. Credit: Indiana University School of Medicine

A multi-center clinical trial led by a Riley Hospital for Children endocrinologist has found that inhaled growth hormone (GH) is well tolerated by children with GH deficiency and that this easy-to-use method can, over a one-week period, safely deliver GH to the blood stream. In addition to having implications for those who need GH, this first pediatric study of administering it through the lungs may also help researchers interested in using this convenient method for effectively

delivering other types of medications to children.

Results of the study appear in the June 2009 issue of the *Journal of Clinical Endocrinology & Metabolism*.

"We need to find less painful ways of administering drugs to children and we were pleased to see that inhaling GH raised the levels of two important indicators in the blood in these children for whom GH was prescribed for growth hormone deficiency or multiple pituitary hormone deficiencies," said Emily Walvoord, M.D., associate professor of clinical pediatrics at the Indiana University School of Medicine, who is the Riley Hospital physician coordinating investigator of the five-center study of 22 patients.

Children taking [growth hormone](#) typically must endure years of daily injections. All of the participants in this study preferred the inhaled version of the drug to injections. They ranged in age from 6 to 16 and had no trouble using the inhaler.

GH is a small peptide hormone which is easily broken down by stomach acid and therefore cannot be taken as a pill. Synthetic GH has been available by injection since 1985. Previous studies have found that nearly one fourth of children miss more than three GH injections each month and 13 percent miss more than half their injections. Thus the development of new delivery options holds promise for improved compliance and treatment effectiveness, as well as patient satisfaction.

"For this study we based our dose levels on previous adult studies of inhaled GH, but we found that children have different physiologies and drug absorption rates when the drug is delivered via the lungs. We saw that children in the study needed higher doses of GH to attain the same blood level as the adults. This finding is an important one because it highlights that [children](#) are not miniature adults and need specially

tailored therapies, particularly when considering the development of new drugs to be given by inhalation into the lungs," said Dr. Walvoord.

Source: Indiana University ([news](#) : [web](#))

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