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Letter to the Editor

The Role of Growth Hormone on Growth of Children with Cystic Fibrosis

Dear Editor,

In spite of recent advances in treatment of infection and emphasis on adequate nutritional intake, patients with cystic fibrosis (CF) frequently have less than ideal body weight and adults are often shorter than their target height.[1]

Owing to a state of relative growth hormone (GH) insensitivity, the anabolic and growth promoting effects of recombinant human GH (rhGH) treatment have been explored in children with CF.[2] A number of open-labeled uncontrolled studies of small numbers of undernourished prepubertal children with CF documented improvements in weight and height with rhGH treatment.[3]

We studied 12 prepubertal children with CF (diagnose is based on clinical presentation and sweat chloride more than 60 meq/L for 2 times) in three divided stages. In the first 3 months (stage 1) they received nutritional guides and supplements in addition to pancreatine. In the second stage all patients received rhGH 0.05 mg/kg/day, 6 days per week for 6 months, and in the last 3 months (stage 3) patients were followed the same as stage 1. All patients were evaluated for growth parameters (weight, height, bone age), monthly.

There were 8 boys and 4 girls with mean age of 5.4 years. The mean weight and height velocities during the first stage (before rhGH treatment) were 116 gr/month and 0.64 cm/month and increased to 417 gr/month and 1.51 cm/month respectively, during the second stage (rhGH treatment), the differences were statistically significant ($P<0.05$).

Also the mean weight and height Z scores before rhGH treatment were -1.46 and -1.7, but increased to -1.25 and -1.3 during rhGH therapy, respectively, the differences were statistically significant ($P=0.002$) also. The mean bone age before and after treatment with rhGH were 51 and 59 month, respectively, the difference was statistically significant ($P=0.011$).

Growth is a dynamic process that starts at conception and ends after full pubertal development.

Failure to thrive is one of the common presenting features of CF after neonatal period, and poor weight gain and impaired linear growth are well recognized in these patients[4]. Therefore assessment of growth in children with CF is essential for monitoring well being, disease activity and response to treatment.[4]

The CF foundation reported that 30% of children are bellow the 10th percentile for height and 26% are bellow the 10th percentile for weight.[5] Of the 13116 children with CF studied by Lai and co-workers in the US, around one third were bellow the 10th percentile and less than 25% were above the 50th percentile for height and weight.[6]

In a randomized clinical trial over one year of 19 prepubertal CF patients whose initial height and weight were below 10th percentile despite adequate caloric intake, Hardin and colleagues reported greater height and weight velocity in those who had rhGH compared with those who did not.[1]

A significant number of our patients had growth failure at presentation and rhGH therapy significantly improved their height and weight velocity.

We conclude that rhGH therapy is safe and effective for enhancing growth in children with CF who do not achieve ideal growth on standard enteral nutritional supplementation.

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