PEDIATRIC ENDOCRINOLOGY

Insulin glargine improves lung disease in children with cystic fibrosis

Treatment with insulin glargine slows progression of lung disease in children with cystic fibrosis who have abnormal levels of fasting blood glucose.

Diabetes mellitus is an increasingly common feature of cystic fibrosis. Epidemiological studies indicate that diabetes mellitus decreases lung function and increases mortality in patients with cystic fibrosis; furthermore, even prediabetic changes in blood glucose levels adversely affect lung function and survival in this group of patients. In light of these data, Mozzillo and coworkers investigated whether treatment with basal insulin glargine—a long-acting analog of human insulin—improves the clinical status of children with cystic fibrosis who have impaired glucose tolerance or diabetes mellitus.

The researchers screened children and adolescents with cystic fibrosis for the presence of glucose abnormalities; patients were classified as having normal glucose tolerance (<7 mmol/l), impaired glucose tolerance (>7.7 mmol/l and <11.1 mmol/l) or diabetes mellitus (>11.1 mmol/l). Children with glucose abnormalities were administered a single dose of insulin glargine daily. Treatment was initiated at 0.2 U/kg and dosage was subsequently adjusted to maintain blood glucose levels of 3.9–7.7 mmol/l. After 12 months of treatment, Mozzillo *et al.* assessed the participants' forced expiratory volume in the first second (FEV_1), numbers of acute pulmonary exacerbations, BMI z-scores, and HbA_{1c} level.

A total of 22 patients (mean age 12.4 years) completed the 12-month intervention. When compared with baseline, an 8.8% increase in FEV_1 was observed after treatment with insulin glargine. In addition, the number of pulmonary exacerbations decreased by 41% in response to therapy. Mozzillo *et al.* did not detect any statistically significant variations in BMI z-score or HbA_{1c} level in the study cohort as a whole, although treatment with insulin glargine did improve the BMI z-score in patients with a baseline BMI z-score at or below –1.

The researchers conclude that early detection of glucose abnormalities and prompt administration of insulin therapy might represent an innovative strategy to improve lung disease in patients with cystic fibrosis.

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Original article Mozzillo, E. *et al.* One-year glargine treatment can improve the course of lung disease in children and adolescents with cystic fibrosis and early glucose derangements. *Pediatr. Diabetes* [doi:10.1111/j.1399-5448.2008.00451.x] (2009).