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DIABETES

CYSTIC FIBROSIS-RELATED DIABETES

The function of β cells declines by almost 4% yearly in patients with cystic fibrosis, but increased insulin sensitivity may initially compensate this decline to ensure normal glucose tolerance, report Italian researchers.

The majority of patients with cystic fibrosis over the age of 40 years are affected by cystic fibrosis-related diabetes mellitus, which is associated with impaired nutritional status and pulmonary function years before diabetes diagnosis.

"We decided to prospectively investigate insulin secretory defects and insulin resistance in a cohort of patients with cystic fibrosis in order to detect the early abnormalities leading to clinical decay and cystic fibrosis-related diabetes in the following years," explains Alberto Battezzati of the University of Milan.

The researchers sampled plasma glucose, serum insulin and C-peptide concentrations during an oral glucose tolerance test in 165 patients with cystic fibrosis (mean age 17 years) and 18 healthy control individuals matched for age and sex. They then calculated insulin secretory and sensitivity parameters by mathematical modeling.

"This work showed that the initial defect of individuals with cystic fibrosis is a reduction in the β-cell responsiveness to glucose and in the speed of this response, rather than an absolute reduction of insulin secretion," reveals Battezzati. The investigators found that aging is associated with a decrement in β-cell function, but that this dysfunction can be masked by increased insulin sensitivity producing normal glucose tolerance. Nevertheless, glucose intolerance occurs when defective β-cell function is combined with normal or defective insulin sensitivity.

The team now plan to evaluate the individual rate of decay of β-cell function and whether insulin secretory defects affect nutritional status and pulmonary function.

Carol Wilson

Original article Battezzati, A. *et al.* Identification of insulin secretory defects and insulin resistance during oral glucose tolerance test in a cohort of cystic fibrosis patients. *Eur. J. Endocrinol.* doi:10.1530/EJE-10-1003