Insulin may have a role to play in protecting beta cells from deterioration in diabetes

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Received: 14 March 2008 / Accepted: 17 March 2008 / Published online: 26 April 2008
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Keywords Beta cell · Insulin · Type 2 diabetes mellitus

To the Editor: In a recent paper, Aston-Mourney and colleagues discuss evidence suggesting that insulin hypersecretion could be a primary causal defect of type 2 diabetes mellitus and that increasing beta cell secretion might actually accelerate the progression to beta cell failure [1]. As a consequence, the authors point out that insulin secretagogues such as sulfonylureas, still widely used in the treatment of diabetes, can be detrimental. Conversely, experimental treatments that put the beta cell at rest, such as diazoxide, are reported as protective of beta cells.

The authors, however, do not discuss the most commonly available intervention that puts the beta cells at rest, i.e. insulin (replacement) therapy. In fact, insulin therapy has been shown to preserve beta cells from deterioration. In newly diagnosed type 2 diabetes patients, a short (2 weeks) intensive cycle of insulin therapy followed by diet alone was associated with remission of diabetes at 24 months in 42% of the patients treated, with significant improvement of indices of beta cell function, such as acute insulin response, homeostasis model assessment (HOMA) of beta cell function, and area under the curve of insulin during an i.v. glucose tolerance test [2]. In addition, the authors reported that the HOMA of insulin resistance decreased, as did the proinsulin/insulin ratio, which indicates an improvement in the quality of insulin secretion [2]. Similar outcomes were observed by Ryan et al. in a smaller sample size [3].

Insulin is thought to exert a protective effect through suppression of diabetes-associated gluco- and lipotoxicity, both of which induce beta cell apoptosis [4].

Currently, new oral antihyperglycaemic agents, particularly incretin mimetics, are avidly claiming a role as beta cell antiapoptotic agents, and this is perceived as one of their major advantages vs traditional therapeutic approaches. However, the data mentioned above indicate that insulin, i.e. the oldest pharmacotherapy for diabetes, has a formidable role not only in long-standing and overly compromised patients with type 2 diabetes, but potentially also in newly diagnosed cases as a powerful means of achieving remission or a delay in the progression of the disease.

Duality of interest A. Del Parigi is an employee of Pfizer and has been involved in the development programme of inhaled insulin (Exubera), recently withdrawn from the market.

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