

Artificial pancreas can prevent the development of hypoglycemia

An article recently published in *The Lancet* reports that using an artificial pancreas system overnight can significantly reduce the risk of nocturnal hypoglycemia in children and adolescents with type 1 diabetes.¹ Moreover, the first clinical trial of an artificial pancreas system delivering both insulin and glucagon has shown that this system can prevent development of hypoglycemia.² The latest issue of the journal *Diabetic Hypoglycemia* (<http://www.hypodiab.com>) reviews advances in artificial pancreas design and production in further detail.

Dr Roman Hovorka, a leading artificial pancreas researcher and author of the *Lancet* paper¹ discusses developments in the field of closed-loop insulin delivery and reviews system components and challenges to the introduction of this technology into clinical practice, including the need for superfast-acting insulin analogs, dual hormone approaches to accelerate insulin absorption, and optimization of the clinical infrastructure to support the use of closed-loop systems.

Professor Simon Heller's related editorial details how technological developments supporting diabetes self-management have so far failed to lead to major improvements in glycemic control or to consistently reduced rates of severe hypoglycemia. He explains that one reason may be the requirement for patients to estimate both basal and prandial insulin doses, which can be demanding for many patients and may lead to ineffective diabetes self-management. Professor Heller discusses how the introduction of closed-loop systems might address this issue.

References

1. Hovorka R, Allen JM, Elleri D, *et al.* Manual closed-loop insulin delivery in children and adolescents with type 1 diabetes: a phase 2 randomised crossover trial. *The Lancet* 2010;**375**(9716):743-51.
2. El-Khatib FH, Russell SJ, Nathan DM, *et al.* A Bihormonal Closed-Loop Artificial Pancreas for Type 1 Diabetes. *Sci Transl Med* 2010;**2**(27):27ra27, published online 14 April 2010.

About Diabetic Hypoglycemia

Published by ESP Bioscience (Sandhurst, UK), Diabetic Hypoglycemia is an influential online diabetes journal led by Editor-in-Chief Professor Brian Frier (Edinburgh, UK), with Associate Editors: Professor Simon Heller (Sheffield, UK), Professor Christopher Ryan (Pittsburgh, USA) and Dr Rory McCrimmon (Dundee, UK). Published three times annually, Diabetic Hypoglycemia provides an interactive forum for the sharing of practical knowledge and opinions in the field of hypoglycemia.

To explore Diabetic Hypoglycemia, please take the guided tour:

<http://www.hypodiab.com/Teaser/hypodiab.html>.

Diabetic Hypoglycemia is published by ESP Bioscience, supported by an unrestricted educational grant from Novo Nordisk A/S (Bagsvaerd, Denmark).

Contact:

Editorial Office

E: enquiries@hypodiab.com

T: +44 (0) 1344 762531

F: +44 (0) 203 0514753