Dr S. Liatis, MD, PhD

BIOG

Dr. Stavros Liatis graduated from Athens University Medical School in 1989. He received board certification in Internal Medicine in 1999 and completed his thesis at the University of Athens Medical School in 2004. He completed his training in Diabetology in 2001.
Currently, Dr Liatis is NHS Director and Consultant in Internal Medicine and Diabetology at Laiko University Hospital in Athens, Greece. His main research interest focuses on clinical Diabetes Epidemiology. He has published 132 papers in peer reviewed journals indexed at MEDLINE (citations: 4489, h-index: 29).
Dr Liatis served as chair of the steering committee of the European Diabetes Epidemiology Study Group of the EASD from 2016-2018 and also as member of the steering committee of the Hellenic Diabetes Society from 2013-2015 and from 2018-2021.

ABSTRACT

Recent developments in automated insulin delivery through smart pump technology. Is there an artificial pancreas on the way?

The discovery of insulin was initially believed to herald the cure for type 1 diabetes, a disease caused by the complete absence of insulin and resulting in death shortly after onset. It was soon, however, realized that despite insulin replacement, devastating complications ensued a few years following diagnosis, due to chronic hyperglycaemia. Today, it is well established that optimal glycemic control is the cornerstone of type 1 diabetes management, increasing life expectancy and minimising complications.

Modern insulin replacement therapy in type 1 diabetes aims to achieve euglycaemia by attempting to mimic the physiological insulin secretion pattern. This can be accomplished either through multiple daily insulin injections or by using highly advanced devices called insulin pumps for continuous subcutaneous insulin delivery. Pump therapy is a complicated treatment scheme, demanding special education and skills. The recent emergence of glucose-responsive automated insulin pumps, which create a closed-loop system involving the pump, a continuous glucose sensor and a feedback-based dose-calculating algorithm, has revolutionized the management of type 1 diabetes. These pumps have succeeded in maintaining the time spent in the euglycemic range at over 70-75%, while minimising the occurrence of hypoglycaemia. Evolution of these so-called *hybrid* closed-loop systems from research to clinical practice has been considered as a major step towards the *artificial pancreas,* the holy grail of type 1 diabetes therapy. However, significant challenges to this approach still persist. These include achieving complete automation (current systems require patient intervention for meal dose calculation), reducing device size, enhancing subcutaneous catheters, and, most importantly, gaining access to portal circulation. These objectives are the focus of intense scientific research.