SNAPS

Applied Medtech technologies

Disruptive APDS technology for the treatment of dysglycaemia

Severe glycaemic dysregulation can lead to life-changing disorders in Brittle diabetes patients that not only affect quality of life, but also require many hospitalisations and generate economic costs. Current standard diabetes treatments can only marginally help Brittle diabetes patients, as they are only within the blood glucose target range for short time episodes.

A disruptive procedure that automatically monitors and controls critical blood parameters offers a promising approach. A semi-miniaturised, portable device communicates directly and almost instantaneously with the patient's bloodstream. In this way, the current blood glucose level can be measured continuously and precisely and the optimal insulin delivery can be determined. The insulin is then delivered directly into the bloodstream via a commercially available standard catheter in order to unfold its effect and thus keep the blood sugar constant in the physiological target range.

To ensure continuous blood glucose measurement, a measurement frequency of 15 minutes is used. This results in 96 measurements per day, with each individual measurement requiring only 20µl to 30µl of blood, which corresponds to a daily requirement of two to three millilitres of blood. A key component of the technology is a special proprietary silicon membrane. This contains millions of pores that help extract pure blood plasma for precise blood glucose measurement in real time.

Unlike traditional electrochemical methods, Seraccess technology uses a photometric method because it is not subject to traditional interfering factors such as signal drift, time delays, interference with various substances such as hydroxyurea or acetaminophen, and slow response times, thus optimising blood glucose measurement.

The permanent monitoring of blood glucose is carried out via a user-friendly and intuitive app. In this way, affected patients are actively involved in the therapy. The measuring frequency is preset by default, but can be individually adapted to the respective patient through machine learning.

The improved regulation of blood glucose levels increases the time-in-range and thus reduces the risk of acute hypoglycaemia and long-term complications.

INNOVATIVE APPROACHES

- **Company:** Securecell AG
- **Product:** Seraccess ONE (control system)
- **Advantages:** (Almost) instantaneous and direct communication with blood circulation

  Highly accurate, automated and precise blood glucose measurement

  Administration of the exact amount of insulin needed directly into the bloodstream

  Improving the time-in-range
- **Website:** https://www.securecell.ch/
- **Contact person:** Dr. Carlo Andretta

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