In-licensing Opportunity:

Non-invasive, ECG based low-level glucose detection

Tracking sugar in the blood is crucial for both healthy individuals and diabetic patients. The University of Warwick has developed an algorithm that continuously detects low glucose levels using an ECG device.

Currently, Continuous Glucose Monitors (GCM) are available by the NHS for hypoglycaemia. It measures glucose in interstitial fluid using an invasive sensor, which sends alarms and data to a display device. In many cases, they are worn up to 7 days and requires calibration twice a day with invasive finger-prick blood glucose level tests.

Dr Leandro Pecchia and his team at the University of Warwick use artificial intelligence to detect hypoglycaemic events from raw ECG signals acquired using off-the-shelf non-invasive wearable or ambient sensors. A pilot study with healthy volunteers found the average sensitivity and specificity approximately 85% for hypoglycaemia detection.

Figure shows a green line for normal glucose levels and a red line for low glucose levels. The horizontal line is the 4mmol/L glucose threshold. The grey area surrounding the continuous line reflects the error bar.

Applications

Our algorithm is able to address these needs in patients in their everyday life

- nocturnal hypoglycaemia
- hypoglycaemia
- patient self-monitoring
- daily activities monitoring

Advantages

- detects hypoglycaemic events in real-time
- potentially predictive capability
- non-invasive
- continuous monitoring as required
- automatic data transfer via Internet of Things
- stress free
- improved quality of life

Patent & Publication

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