Arab Health 2022: Headset could help reverse diabetes and obesity

▶ Cost-effective device sends electric pulses to the brain stem to regulate blood sugar and appetite

Jason McKeown, chief executive of Neurovalens, demonstrates the Vestal DM device at Arab Health in Dubai. Antonie Robertson / The National

Nick Webster
Jan 25, 2022

A headset that delivers tiny electric pulses to the brain and is worn for just an hour a day could prove a cost-effective alternative to treating diabetes and obesity, says a medical company from Northern Ireland.

Neurovalens demonstrated its pioneering Vestal DM device on the first day of Arab Health, the region's largest exhibition of its kind, being held at the Dubai World Trade Centre from January 24-27.

After three years of research and almost £15 million (Dh74m) of investment, the company has said the device could soon offer a non-invasive alternative to medication or brain implant surgery.

> We have seen a three times more likely chance of improving diabetes by wearing the device, than without it.
> **Dr Jason McKeown, Neurovalens**

Dr Jason McKeown, chief executive of Neurovalens, who developed the headset during neuromodulation research at the University of California in San Diego, said the device could be used to target diabetes and metabolism through harmless electric pulses.

Neuromodulation is an area of science that stimulates nerves to produce a natural biological response, which can be done by applying small doses of stimulation directly to a specific site in the brain.

It is claimed that the Vestal DM device improves the part of the brain that protects against type two diabetes and obesity by controlling the blood sugars and appetite.

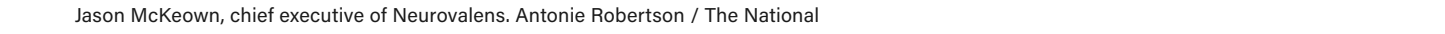
"You are putting electricity into the brainstem that controls the regulation of the body such as breathing, heart rate and blood glucose," said Dr McKeown, the neuroscientist who has received a £2 million (Dh9m) UK government innovation grant for his research.

"If those areas are not working well, the brain requires stimulation that is usually delivered via an implant and an expensive surgery that typically costs around $30,000.

"We haven't recreated the wheel, just reinvented a non-invasive alternative to that procedure.

"This gives a low-risk option to treat diabetes.

"We know around 1 in 5 people in the UAE have diabetes, and the same number has pre-diabetes, an early sign of the long term chronic condition."



Jason McKeown, chief executive of Neurovalens. Antonie Robertson / The National

Around a billion people worldwide have either diabetes or pre-diabetes.

UAE

Clinical trials

The headset requires around an hour of use each day, with users in clinical trials also reporting improved sleep patterns.

A recent 15-week trial at University College Dublin tested the device on 30 Indian patients with type two diabetes, who used it for about five hours a week over a three-month period, to see how effective it was in reducing blood sugar levels, known as HbA1c.

HbA1c, or glycated haemoglobin, develops when haemoglobin — a protein within red blood cells that carries oxygen throughout your body — joins with blood glucose.

By measuring HbA1c, doctors can analyse a patient's blood sugar levels over time, with the higher the count, the greater the risk of developing diabetes-related complications.

The Vestal DM device was developed after three years of research and almost £15 million (Dh74m) of investment. Antonie Robertson / The National

The study on Indian patients reported a reduction from 7.22 per cent to 5.03 per cent over the trial.

The company is seeking US Food and Drug Administration approval, and Neurovalens hopes to show a high rate of diabetes reversal in patients with pre-type two diabetes and a 0.4 per cent reduction in their HbA1c count after 16 weeks of using the device.

Neurovalens also has separate devices under the Modius brand that can be preprogrammed to treat different ailments.

The headset devices can improve sleep and stress, with early research also showing the devices could even help reduce migraine symptoms.

READ MORE

Survey suggests 30 per cent of Dubai population has diabetes or is pre-diabetic

UAE child obesity clinic tells parents that diet not surgery is the answer

Diabetes breakthrough as drug shown to tackle 'zombie fat cells'

"Neurological improvements take a long time, so our trials typically take place over a 24-week period to see how effective they are," said Dr McKeown.

"Usually, once a diabetes patient stops taking their medication the reaction ceases, but with the headset, we are looking at longer-term research that may permanently improve glucose metabolism.

"We have seen a three times more likely chance of improving diabetes by wearing the device, than without it.

"Preventative medicine is a huge area of healthcare now and the current interventions available to doctors are too risky for patients with pre-diabetes.

"This is a much safer, non-invasive alternative."

Updated: January 25th 2022, 7:35 AM

DUBAI HEALTHCARE TECHNOLOGY SCIENCE

EDITOR'S PICKS

What deal would keep Vladimir Putin out of Ukraine?

Louvre Abu Dhabi's Versailles and the World presents a gateway to 17th-century France

Rafael Nadal 'very proud' to have inspired Meshkatolzahra Safi's Australian Open journey

Egypt's film stars rally behind Mona Zaki over 'Perfect Strangers' controversy

Lebanon needs more than foreign friends to save itself