Breakthrough Artificial Pancreas Study Welcomed As New Data Reveals UK People With Type 1 Diabetes Have "Shockingly High" Number Of Hypos

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Hollywood actor Jeremy Irvine, who lives with type 1 diabetes, hails artificial pancreas.?

In a world first, British children with type 1 diabetes have successfully been entrusted to use pioneering artificial pancreas technology all by themselves at home overnight - without the careful supervision of expert researchers.

The breakthrough trial, detailed today in the journal Diabetes Care, comes as type 1 diabetes charity JDRF reveals UK people living with the condition are experiencing a "shockingly high" average of ten hypos a week - laying bare the urgent need for the artificial pancreas to become an accessible reality.

The University of Cambridge-devised artificial pancreas promises to dramatically improve quality of life of people with type 1 diabetes, which typically develops in childhood. The latest trial, coordinated by the University and funded by JDRF, has shown for the first time globally that unsupervised use of the artificial pancreas overnight can be safe - while also providing exciting benefits.

Participants, all aged between 12 and 18, saw improved blood glucose control during the trial, experiencing fewer nights with hypoglycaemic episodes, generally known as hypos. A hypo occurs when the blood glucose level of someone living with type 1 diabetes falls dangerously low. Without proper treatment, it may cause unconsciousness and even death.

The figure of ten hypos per week has emerged through a first ever real-time information haul of more than 10,000 UK residents with type 1 diabetes, released to JDRF from the mySugr app. It follows the recent revelation that nine per cent of all hospital admissions for children and young people with diabetes are due to hypos*.

All previous artificial pancreas trials, in hospitals and in home environments, have seen researchers strictly monitor patients. News of the successful unsupervised trial has had a positive response from UK celebrities that live with type 1 diabetes.

Hollywood actor Jeremy Irvine, who is a JDRF supporter, has lived with type 1 diabetes since the age of six. He said: "When the chance came for me to take part in early artificial pancreas trials a few years ago, I jumped at the opportunity. I wanted to play my own very small part in moving the artificial pancreas closer to reality. I'm really excited to hear of this latest progress - the scientists behind it are my heroes."

Television presenter Dominic Littlewood gave his reaction to the statistic showing that UK people with type 1 diabetes are having 10 hypos a week. He said: "I have lived with type 1 diabetes for almost 40 years. When you do the maths, 10 per week means I may have had 20,000 hypos in my lifetime. That's more than many people have had hot dinners. It highlights the challenge that this life-long condition represents."

He added: "Worrying about hypos - let alone actually having one - is a daily stress for anyone with this condition. I experienced my worst hypo during the night in a hotel room just over 10 years ago. I found myself crawling along my hotel room floor, before finally being hospitalised. It nearly killed me. That's why JDRF's progress on the artificial pancreas means a lot to me."

Sky News presenter Stephen Dixon, who was diagnosed with type 1 diabetes when he was 17, said: "I've always refused to let type 1 diabetes hold me back. But minimising hypos does take considerable effort. I always carry Glucogel or a snack around with me in case I feel the symptoms of a hypo come on - which has happened when I've been on air. The artificial pancreas is very exciting technology. I look forward to the time when I can use one myself as part of day-to-day life."

Dr Roman Hovorka from the University of Cambridge is leading the UK effort to develop an effective artificial pancreas. As principal researcher on the trial, he said: "The study is an important stepping stone for the wider use of an artificial pancreas. We have shown that overnight home use is feasible and beneficial - allowing people to live their life more freely."

He added: "The artificial pancreas is expected to transform the treatment of type 1 diabetes and we have

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proven that this promise holds. The success of this trial means that larger and longer studies are already in the pipeline."

Katharine Barnard, from the Human Development and Health Academic Unit at the University of Southampton, worked with Dr Hovorka on the trial to evaluate psychosocial impact. She said: "Hypoglycaemia - particularly at night - is a common fear among those living with type 1 diabetes and a major obstacle in achieving optimal blood glucose levels. The findings from this study are positive and are certainly worth investigating further."

She added: "Reassurance, confidence and improved diabetes control are just some of the psychological and physical benefits that patients may witness as artificial pancreas technology continues to develop."

Karen Addington, is UK Chief Executive of JDRF, the type 1 diabetes charity which funded Dr Hovorka's study. She said: "Type 1 diabetes is a challenging and complex condition that requires constant management every day. At JDRF we remain focused on improving lives until we find the cure."

She added: "Hypos are what people living with type 1 diabetes hate most. Ten hypos a week is a shockingly high figure, demonstrating just how much we need the artificial pancreas to become an accessible reality. Thankfully, the results of this latest artificial pancreas study are really exciting."

ENDS.

Notes to Editors

About type 1 diabetes:

- Type 1 diabetes is a chronic condition that has a life-long impact on those diagnosed with it and their families
- Type 1 diabetes is an autoimmune condition which cannot be prevented, and is not linked to lifestyle factors such as diet and exercise
- People with type 1 diabetes currently rely on multiple insulin injections or pump infusions every day just to stay alive
- A child diagnosed with it at the age of five faces up to 19,000 injections and 50,000 finger prick blood tests by the time they are 18
- It normally strikes children and stays with them for the rest of their lives

About the artificial pancreas: The artificial pancreas aims to replicate the insulin-producing functions of a healthy pancreas. It is designed to provide exactly the right amount of insulin to the body, exactly when it's needed. The University of Cambridge team in charge of this study only saw the findings from the trial when patients submitted their data in weekly intervals over three weeks - making it the first unsupervised trial.

About this study: Roman Hovorka, Daniela Elleri, Hood Thabit et al. Overnight Closed-Loop Insulin Delivery in Young People With Type 1 Diabetes: A Free-Living, Randomized Clinical Trial. Diabetes Care 2014;37:1204-1211. See the attachment for the full study report that will appear in Diabetes Care. Shortly after publication, the study paper will be available online at http://dx.doi.org/10.2337/dc13-2644

* From the Royal College of Paediatrics and Child Health (RCPCH)'s audit. The nine per cent figure is for England and Wales. The full paper can be accessed online.

About JDRF: JDRF exists to find the cure for type 1 diabetes and its complications, and is the world's leading type 1 diabetes research charity. At a global level, JDRF volunteers and staff have been responsible for raising over £1 billion to support type 1 diabetes research, since the charity's inception.www.jdrf.org.uk

About the University of Cambridge: The mission of the University of Cambridge is to contribute to society through the pursuit of education, learning and research at the highest international levels of excellence. To date, 90 affiliates of the University have won the Nobel Prize.

Founded in 1209, the University comprises 31 autonomous Colleges, which admit undergraduates and provide small-group tuition, and 150 departments, faculties and institutions.

Cambridge is a global university. Its 19,000 student body includes 3,700 international students from 120 countries. Cambridge researchers collaborate with colleagues worldwide, and the University has established larger-scale partnerships in Asia, Africa and America.

The University sits at the heart of one of the world's largest technology clusters. The 'Cambridge Phenomenon' has created 1,500 hi-tech companies, 12 of them valued at over US$1 billion and two at over US$10 billion. Cambridge promotes the interface between academia and business, and has a global reputation for innovation. www.cam.ac.uk

About mySugr: mySugr "changes diabetes therapy with their smart phone apps - making it simple, beautiful and even fun." The hypo statistic was collected from 10,543 UK mySugr users, taken during January 2014, (and is based upon recordings lower than 3.9 mmol/L). The use of apps for recording this kind of information means that we now have bigger and more accurate sample sizes, to provide new insights into living with type 1 diabetes.

Press Contact:

Case studies of families affected by hypo hospitalisations are available from the JDRF press team.

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