

Pioneering use of diabetic drug to treat heart disease

June 23 2016, by Roddy Isles

Researchers at the University of Dundee have launched a series of projects to determine whether a new class of anti-diabetes drugs could also be used to treat heart disease.

Diabetes and [heart](#) disease are frequently seen together and can be a potentially lethal combination. Past and present anti-diabetic medications that lower blood sugar levels have been shown to improve some markers of cardiovascular disease, however there has yet to be conclusive evidence linking them to a reduction in rates of heart attacks and death.

Recently, research published in the *New England Journal of Medicine* revealed a new class of diabetic drug - called sodium glucose linked cotransporter 2 (SGLT2) inhibitors - reduced the rates of hospitalisation for heart failure and death due to cardiovascular causes among diabetic patients with high cardiovascular risk.

SGLT 2 inhibitors, which are already being used to treat diabetes, act to lower blood sugar via the kidneys. Besides that, they have also been shown to increase urinary volume, lower blood pressure and induce weight loss, all of which are potentially beneficial cardiovascular effects.

Now researchers at Dundee, led by Professor Chim Lang (pictured above), are simultaneously conducting three clinical [trials](#) in a world's first attempt to study the effects of SGLT2 inhibitors on the cardiovascular system.

"This class of anti-diabetes drugs shows considerable potential to be a treatment for heart disease, with strong indicators of beneficial effects for cardiovascular patients," said Professor Lang.

"We are uniquely well positioned at Dundee to examine novel approaches like this to simultaneously treating diabetes and heart disease. Our projects involve collaboration across the University between leading experts in cardiovascular disease, diabetes and magnetic imaging, and will place the University of Dundee as the leading authority in this field."

The three clinical trials that make up this comprehensive research programme include:

- the REFORM trial, looking at the effects of SGLT2 inhibitors on patients with heart failure
- the REGRESS trial, studying the protective effects of SGLT2 inhibitors on thickened heart muscles
- the RECEDE trial, which will be studying the overall cardiovascular and renal effects of SGLT2 inhibitor therapy.

"There has been growing interest in the benefits of this drug in treating diabetes and heart failure and how they work," said Dr Jagdeep Singh, who is a clinical research fellow working for Professor Lang and the principal investigator of the REFORM trial. "This trial is funded by the European Foundation for the Study of Diabetes and is the first dedicated clinical trial to study the exact mechanisms behind these effects."

Professor Allan Struthers, chief investigator on the REGRESS study, said it would be surprising if SGLT2 inhibitors were not seen to be protective of the heart in patients at risk of [heart disease](#).

"In [diabetes](#) these new drugs reduce the load on the heart by lowering the

filling pressure and the emptying pressure. Such effects are usually favourable on the heart and I would be surprised if we did not see this positive effect in the REGRESS study," said Professor Struthers.

The REGRESS trial is funded by drug-maker Astra Zeneca and is due to begin recruitment imminently.

Professor Lang heads the RECEDE trial, which has been funded by the British Heart Foundation. "This study will help answer some fundamental questions on the action of this drug on the heart and kidneys," said Professor Lang.

More information: Any patients wishing to volunteer for any of the studies or obtain further information can contact Lynn Rutherford, Senior Clinical Research Nurse/Trial Coordinator, on 01382 383254 or at l.rutherford@dundee.ac.uk

Provided by University of Dundee

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