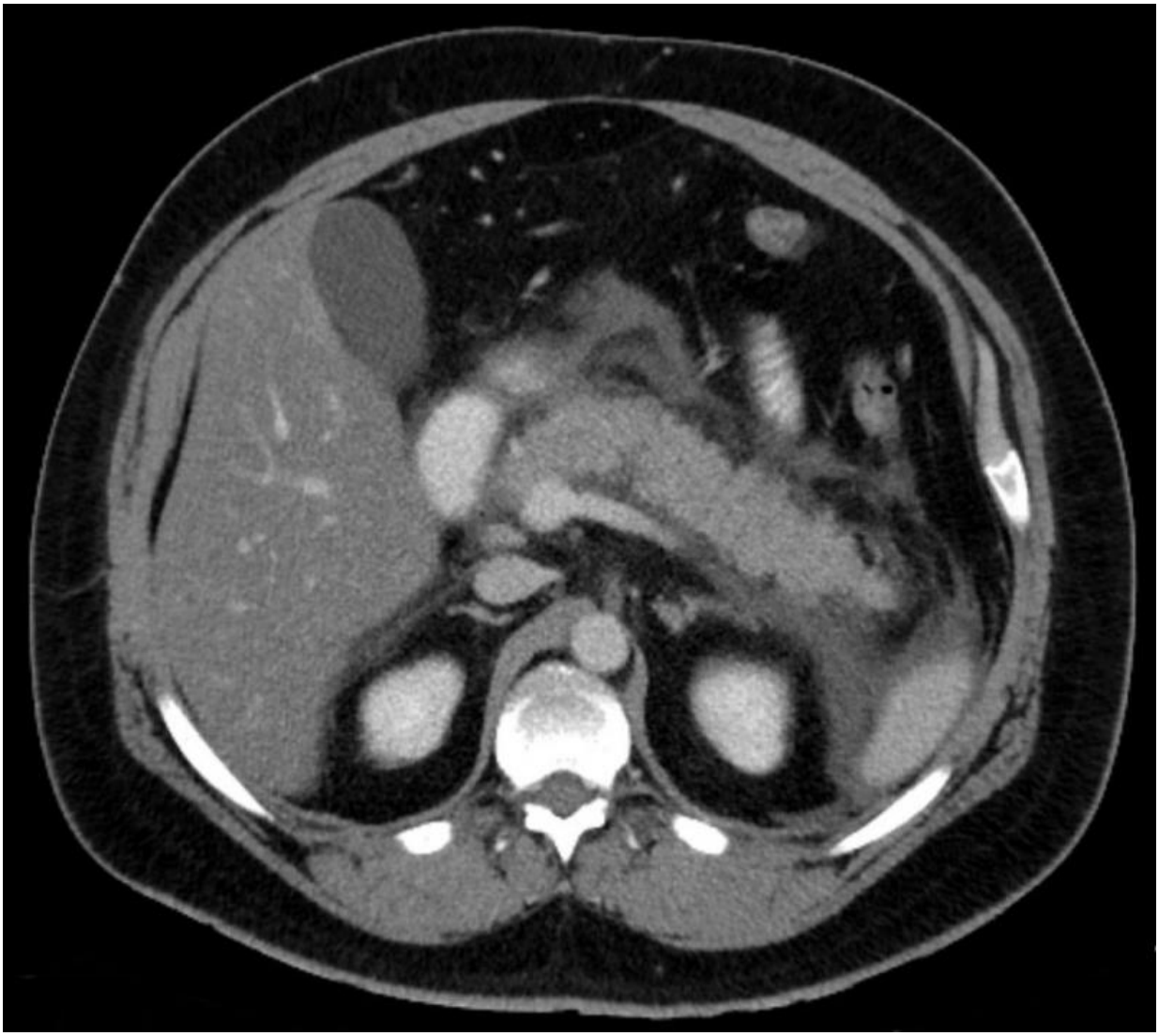
Medical Xpress

New therapy aids bid to beat organ failure caused by pancreatitis

January 11 2016



Acute exudative pancreatitis on CT scan. Credit: Hellerhoff/Wikipedia

Patients suffering organ failure caused by a common inflammatory condition could be helped by a new therapy.

Scientists have discovered an experimental medicine that protects against organ damage caused by a condition called acute pancreatitis.

The research offers hope for the illness, which has no current treatment, and which affects thousands of people in the UK each year and places a huge burden on intensive care facilities.

Acute pancreatitis is caused by a severe inflammatory reaction in the pancreas, which is usually triggered by gallstones or excessive alcohol consumption. Pancreatitis is not a disease caused by infection.

Most patients are admitted to hospital but recover without any specialist treatment. However, one in five people with the condition develop life-threatening complications that require intensive care. These people can need breathing support, tube feeding and sometimes kidney dialysis and one in five of those will die.

If the inflammation affecting the pancreas spreads throughout the body, vital organs, for example the lungs, kidneys and gut can fail.

Currently, the only way to treat organ failure caused by the condition is to support the functions of the body in the hope that the inflammation resolves.

Researchers at the University of Edinburgh have previously identified a key enzyme called KMO, which fuels the inflammation linked to the condition.

A team from the University's Medical Research Council Centre for Inflammation Research and the University/BHF Centre for

Cardiovascular Science worked with scientists from GlaxoSmithKline to identify a chemical compound that blocks KMO.

In carefully controlled studies using mice and rats, they found that this approach calms inflammation in acute pancreatitis and protects against organ failure caused by the condition.

The research is the product of a Discovery Partnership with Academia (DPAc) collaboration between the University of Edinburgh and GlaxoSmithKline (GSK).

In late 2011, Edinburgh BioQuarter negotiated the partnership between the University and GSK, integrating the University's in-depth knowledge of acute pancreatitis, the target and disease biology, with GSK's expertise in making new medicines.

The collaboration has reached a key preclinical milestone - a major step in the journey towards the development of a new medicine to treat acute pancreatitis.

The study is published in the journal *Nature Medicine*. The team and the research was initially funded by the Health Foundation, Academy of Medical Sciences, Medical Research Council and Wellcome Trust, before pursuing a drug discovery programme with GSK.

Mr Damian Mole, an academic consultant surgeon and Principal Investigator in the MRC Centre for Inflammation Research at the University of Edinburgh led the research with Dr Scott Webster of the University/BHF Centre for Cardiovascular Science.

Mr Mole said: "Acute pancreatitis is a hugely important health problem and one of the most terrible diseases any individual can suffer. Although we know there is much work to do before clinical trials can confirm

whether KMO inhibitors are effective in humans with pancreatitis or not, we are really excited to have this promising new medicine and the opportunity to see if it can make a real difference to patients."

Dr Scott Webster, Reader at the University of Edinburgh's BHF Centre for Cardiovascular Science, said: "We are immensely encouraged that selective KMO inhibition might provide a therapy to treat acute pancreatitis and are excited to be working with GSK to develop a new medicine for this important unmet medical need."

More information: *Nature Medicine*, dx.doi.org/10.1038/nm.4020

Provided by University of Edinburgh