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Study shows combination therapy cuts risk of heart attacks and stroke in half

A combination therapy of aspirin, statins and at least two blood pressure medications given in fixed doses can slash the risk of fatal cardiovascular disease (CVD) by more than half, says an international [study](#) involving researchers from the University of Cape Town (UCT).

The fixed-dose combination (FDC) therapies were examined both with and without aspirin versus control groups in a combined analysis of more than 18 000 patients without prior CVD from three large clinical trials. FDCs including aspirin cut the risk of heart attacks by 53%, stroke by 51% and deaths from cardiovascular causes by about 49%.

"This study is based on research spanning over two decades and is going to have impact worldwide. The study included participants from 26 countries and every inhabited continent of the world," said Professor Karen Sliwa, director of UCT's Cape Heart Institute.

Approximately 19 million people worldwide die of CVD and twice as many experience heart attacks or strokes every year.

"About 80% of cardiovascular events occur in individuals without a prior history of such illness, meaning effective preventative strategies including medications in people without CVD is essential if we are to prevent the majority of heart attacks, strokes and related deaths in the world," Sliwa added.

"This combination, either given separately or combined as a polypill, substantially reduces fatal and non-fatal CVD events," commented lead author Phil Joseph, associate professor of medicine at McMaster University and a cardiologist for Hamilton Health Sciences in Hamilton, Canada.

"The largest effects are seen with treatments that include blood pressure lowering agents, a statin and aspirin together, which can reduce fatal and non-fatal cardiovascular events by about half.

“The benefits of fixed-dose combination therapy are consistent at different blood pressure levels, cholesterol levels and with or without diabetes, but larger benefits may occur in older populations.”

Joseph is the lead author of the meta-analysis study by the Population Health Research Institute (PHRI) of McMaster University and Hamilton Health Sciences, with more than 18 investigators from 13 countries, which was led by Professor Salim Yusuf, executive director of PHRI.

FDC treatment strategies trialed by the researchers were previously thought to substantially reduce CVD events and are called ‘polypills’ when used in a single-tablet drug formula.

“These results are huge, and its wide use can avoid between five and 10 million individuals experiencing a stroke, heart attack or dying from these conditions yearly. I could see a future with development of a stronger polypill where we could see a lowering of cardiovascular disease by 70% around the world and leading to even greater benefits,” said Yusuf.

“Given that all the components of the polypill are generic and low cost, polypills can be provided to participants at modest costs and are likely to be very cost effective.”

The concept of a combination pill was first proposed almost 20 years ago as a strategy to substantially reduce CVD in both secondary prevention and at the population level.

Early trials demonstrated improved patient adherence to treatment regimens and better risk control with a strategy including the inexpensive and safe polypill, compared to the use of single drugs, usual care, or placebos.

Researchers gleaned their findings from combining data from three big studies on a total of 18 000 people followed for about five years – these included the International Polycap Study (TIPS)-3, the Heart Outcomes Prevention Evaluation (HOPE)-3 study and the PolyIran trial.

Several international experts praised the study.

“The World Heart Federation (WHF) is committed to promoting cardiovascular health for everyone by reducing the CVD burden worldwide, in both developed and developing countries,” said WHF president Fausto Pinto.

“The demonstration of a low-cost approach using fixed dose combinations to reduce CVD by about 50% is extraordinary and represents a huge opportunity to tackle the condition globally, with a major potential impact on people's lives. The WHF has supported the use of a polypill for the last decade and these results provide robust evidence to strengthen our global advocacy strategy.”

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