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## Aspirin cuts cancer rates in people with hereditary risk by 60%

**UCT collaborates in study involving researchers from 43 centres in 16 countries who followed 1,000 patients for 10 years or more**

Research has provided proof that taking a regular dose of aspirin reduces the long-term risk of cancer in people with a family history of the disease by about 60 percent.

The international collaboration, including researchers at the University of Cape Town and colleagues in Newcastle and Leeds whose work was published recently in *The Lancet*, reveals that the benefits only become obvious several years after taking the aspirin.

The study involved scientists and clinicians from 43 centres in 16 countries who followed nearly 1,000 patients, in some cases for more than 10 years. A significant number of patients were recruited through the Division of Human Genetics and the Surgical Gastroenterology Unit at UCT.

Professor Raj Ramesar of the Division of Human Genetics in the Faculty of Health Sciences at UCT, focuses on identifying individuals who are genetically predisposed to the disease. He said: "Many individuals in our cohort, predisposed to disease, live in far-flung rural areas and have difficulty in accessing the clinical colonoscopic surveillance provided by our colleagues such as Professor Paul Goldberg at Groote Schuur Hospital, or even the mobile service to the remote regions of the Northern Cape. Knowing that this drug is helpful adds another weapon in our fight against this disease."

### Background to the research

Evidence of the benefits of aspirin has been accumulating for more than 20 years, but these are the first results from a randomised controlled trial assessing the effect of aspirin on cancer.

Late in 2010, an analysis of people who had taken part in the early aspirin trials to prevent heart attacks and strokes showed that in subsequent years they developed fewer cancers. A randomised trial then specifically looked at its effect on cancer.

Professor Sir John Burn from Newcastle University, who is a regular visitor to the division of Human Genetics at UCT, led the international research collaboration. Professor Burn said: "What we have finally shown is that aspirin has a major preventative effect on cancer, but this doesn't become apparent until years later."

The trial was overseen by Newcastle Hospitals NHS Foundation Trust and funded by the UK Medical Research Council, Cancer Research UK, the European Union and Bayer Pharma.

The study focused on people with Lynch syndrome, an inherited genetic disorder which affects genes responsible for detecting and repairing damage in the DNA. Around half of these people develop cancer, mainly in the bowel and womb.

Between 1999 and 2005 a total 861 people began either taking two aspirins (600mg) every day for two years or a placebo. At the end of the treatment stage in 2007 there was no difference between those who had taken aspirin and those who had not. However, the study team anticipated a longer term effect and designed the study for continued follow-up.

By 2010 there had been 19 new colorectal cancers among those who had received aspirin and 34 among those on placebo. The incidence of cancer among the group who had taken aspirin had halved – and the effect began to be seen five years after patients starting taking the aspirin.

A further analysis focused on the patients who took aspirin for at least two years according to the original design - some 60% of the total - and here the effects of aspirin were even more pronounced: a 63% reduced incidence of colorectal cancer was observed with 23 bowel cancers in the placebo group but only 10 in the aspirin group.

Looking at all cancers related to Lynch syndrome, including cancer of the endometrium or womb, almost 30% of the patients taking the placebo had developed a cancer compared to around 15% of those taking the aspirin.

"What surprised us was that there was no difference in the number of people developing polyps which are thought to be the precursors of cancer. But, many fewer patients who had been taking aspirin years before went on to develop cancers," said Professor Tim Bishop from the University of Leeds, whose team was responsible for the statistical analysis.

Professor Burn explained: "We have succeeded in showing the benefits of aspirin because we had a lot of long term data and because Lynch syndrome is associated with rapid development of cancer.

"It has also demonstrated how our research community and families with inherited forms of cancer can work together to answer questions important for the whole population.

"Before anyone begins to take aspirin on a regular basis they should consult their doctor as aspirin is known to bring with it a risk of stomach complaints including ulcers," advised Professor Burn.

"However, if there is a strong family history of cancer then people may want to weigh up the cost benefits, particularly as these days drugs which block acid production in the stomach are available over the counter."

Professor Nick Hastie, Director of the Medical Research Council Human Genetics Unit in the UK, said: "Bowel cancer is the second commonest cause of cancer death in the UK, being responsible for 16,000 deaths a year. This landmark study provides the clearest evidence yet that aspirin can help protect against development of this disease. As we learn more

about the underlying mechanism of this anti-tumour effect, we will eventually be able to develop new ways of preventing and treating cancer.”

The researchers believe the study shows that aspirin is affecting an underlying mechanism which pre-disposes someone to cancer and further study is needed in this area. Since the benefits are occurring before the very early stages of developing a tumour – known as the adenoma carcinoma sequence - the effect must be changing the cells which are predisposed to become cancerous in later years.

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