

**EMBARGO 0001 UK Time Fri 28 Oct**

### **Aspirin cuts cancer rates in people with hereditary risk by more than half**

Research has finally 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 around 60 per cent.

The international collaboration, including researchers at the Universities of Newcastle and Leeds whose work is published today in *The Lancet*, reveals that the benefits only become obvious several years after taking the aspirin.

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

Late last year 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. The missing piece of the jigsaw was a randomised trial specifically looking at its effect on cancer.

Professor Sir John Burn from Newcastle University who led the international research collaboration 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 study involving scientists and clinicians from 43 centres in 16 countries followed nearly 1,000 patients, in some cases for over 10 years.

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 (600 mg) 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.

“This beneficial effect years later makes sense of all the observational studies - previous randomised trials have not been allowed to run for long enough,” he added.

Sir John explains: “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,” advises Sir John.

“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, 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 international team are now preparing a large-scale follow-up trial and want to recruit 3,000 people across the world to test the effect of different doses of aspirin. The trial will compare two aspirin a day with a range of lower doses to see if the protection offered is the same.

Information on the trial can be found at [www.capp3.org](http://www.capp3.org)

### **Mechanism**

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.

One possibility is that a little recognised effect of aspirin is to enhance programmed cell death. This is most obvious in plants where salicylates trigger this mechanism to help diseased plants contain the spread of infection.

“We may be seeing a mechanism in humans whereby aspirin is encouraging genetically damaged stem cells to undergo programmed cell death, this would have an impact on cancer,” says Sir John.

Over the course of the clinical trial, funding came from Cancer Research UK, UK Medical Research Council, European Union, Bayer Corporation, National Starch and Chemical Company, The Newcastle Upon Tyne Hospitals NHS Foundation Trust and Bayer Pharma.

### **The next trial**

To take part in the next trial people can sign up at [www.capp3.org](http://www.capp3.org)

This trial is open to anyone with Lynch syndrome, and they will be asked to sign up online to be allocated a dosage of aspirin and then report their medical health over several years.

**Notes:**

Professor Sir John Burn can be contacted via Karen Bidewell, Newcastle University press office: 07816 756 027 / 0191 222 7850

Photos: A photograph of Professor Sir John Burn can be obtained from [press.office@ncl.ac.uk](mailto:press.office@ncl.ac.uk) or by calling 0191 222 7850.

Long-term effect of aspiring on cancer risk in carriers of hereditary colorectal cancer: an analysis from the CAPP2 randomised controlled trial, The Lancet Online First publication, 28 October 2011

Further international funding was provided by: Newcastle Hospital Trustees, Cancer Council of Victoria Australia, THRIPP South Africa, The Finnish Cancer Foundation, SIAK Switzerland.

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