Humble hero or hidden villain? The ongoing story of aspirin's powers

September 21 2012, by Professor Andrew Tonkin

The humble aspirin has a remarkable history dating back to ancient Egyptian times when the bark of weeping willow (which contains salicin from which the aspirin formulation is derived) was found to have anti-inflammatory properties. And Hippocrates wrote about the medicinal uses of white willow in the fifth century BC. But this story is not over yet.

This year marks another noteworthy chapter in the history of aspirin. A variety of articles about the medicine have attracted significant attention in both the scientific and lay press. Research and news stories have reported potential benefits of aspirin beyond preventing heart attacks and stroke, and re-emphasised bleeding risks.

One academic article provided an overview of individual patient data from seven randomised cardiovascular trials of four years or more in over 23,000 patients. It showed that death from all solid cancers was reduced overall by about 15 per cent by aspirin. The effect became significant after about five years and persisted to 20 years. Risk was unrelated to aspirin dose.

But it's important to note that two very large trials – the Women's Health Study and the Physician's Health Study – of almost 60,000 individuals followed up for 10-to-12 years were excluded because they tested alternate days rather than daily aspirin. In these trials, aspirin had no effect on cancer.

Other studies by the same researchers who published the meta-analysis showing aspirin's ability to protect against cancer also showed that the medicine had early short-term effects on cancer incidence and mortality and that metastatic spread (particularly of adenocarcinoma) was reduced by about 40 per cent to 50 per cent in a few years.

These observations add to previous studies suggesting aspirin may play a role in preventing gastrointestinal cancer, particularly in at-risk groups. We can only speculate about how this happens but platelets may be involved in cancer development by releasing growth factors and in metastatic spread by their role in the circulation.

Earlier this year, researchers published an updated meta-analysis of nine placebo-controlled trials of primary prevention for cardiovascular disease, involving over 100,000 people with an average age of 57 years. The paper attracted much more negative publicity than positive. It showed a greater number of non-trivial bleeds (30 per cent increase) than cardiovascular events prevented, mainly non-fatal heart attacks. Also, in contrast to the other papers, aspirin was found to have no effect on cancer mortality.

More recently, the bleeding risk has again been underscored by Italian research showing that the risk of major bleeds, such as intracranial haemorrhage and gastrointestinal bleeding, in real-life practice is five times more than in clinical trials.

So where does this leave practising clinicians?

In patients already diagnosed with coronary artery disease or those who've suffered a stroke, or have peripheral arterial disease, aspirin should be used with other proven secondary prevention therapies (providing bleeding risk is not considered prohibitive). In such contexts, aspirin reduces the risk of recurrent cardiovascular disease by about a

quarter.

In those who are apparently healthy, cancer prevention is a very important possibility. But the evidence for taking aspirin daily as a cancer preventative is not considered sufficiently robust to warrant a population-wide recommendation for it to be used like this. The decision to do so should be made on an individual basis.

What's needed is more information for patients and doctors that can inform decision-making, particularly for the elderly and people with diabetes who don't have known cardiovascular disease. This is because both ageing and diabetes increase not only risk of heart problems and stroke but also bleeding. Increasing age and possibly diabetes also increase cancer risk.

Providing the kind of information that can help resolve this dilemma is exactly what we're hoping to do with the ASPREE study. The study involves 19,000 healthy people aged 70 and over and is designed to reliably address the net effects of aspirin. The primary endpoint of the study is healthy life years that might be impacted. It not only assesses quality of life, including cognition, but will also capture all effects of aspirin, both favourable and adverse.

Randomised trials eliminate the biases and confounding that often occur in population-based studies. The ASPREE study could have a major impact not only on the well-being of older Australians but globally. Just how much of a humble hero aspirin is, or whether it is, in fact, a villain because it causes bleeding, will hopefully soon be established.

More information: Readers can get more information about the ASPREE study online

Provided by Monash University