Long-term use of aspirin and NSAIDs reduces the risk of colorectal cancer

EBM

A prospective cohort study involving 82,911 female participants has shown that regular long-term use of aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs) reduces the risk of colorectal cancer.

The study population was recruited from the Nurses' Health Study, a study established in 1976 that enrolled US female registered nurses. Every 2 years, questionnaires were sent to the participants asking about their medicine use, including that of aspirin and other NSAIDs. Information specifically about cyclo-oxygenase 2 inhibitors was not collected.

Colorectal cancer was documented in 962 of the participants. Long-term regular aspirin use (2 or more standard tablets per week) was associated with a significant reduction in risk of colorectal cancer. The apparent benefit associated with aspirin use was substantially greater with increasing aspirin dose, and the greatest risk reduction was observed in women taking more than 14 doses of aspirin per week. Increased duration of aspirin use was also associated with progressively reduced risk of colorectal cancer, although significant benefit was not evident until more than 10 years' usage. The results for non-aspirin NSAIDs were comparable with those for aspirin. As well as the apparent benefit of aspirin and NSAIDs, increased dosages were associated with increased gastrointestinal bleeding.

The investigators note that further studies to address the risk–benefit profile of long-term aspirin or NSAID use in various risk groups, compared with other potential cancer prevention strategies, are warranted.

Rachel Murphy

Original article Chan AT *et al.* (2005) Long-term use of aspirin and nonsteroidal anti-inflammatory drugs and risk of colorectal cancer. *JAMA* **294:** 914–923

Extra-virgin olive oil has similar activity to ibuprofen

A recent study has shown that oleocanthal, a component of extra-virgin olive oil, has an anti-inflammatory profile and potency 'strikingly' similar to the nonsteroidal anti-inflammatory drug ibuprofen. Although the two molecules are structurally dissimilar, they both produce a strong stinging sensation in the throat, and inhibit the same cyclo-oxygenase (COX) enzymes in the prostaglandin biosynthesis pathway.

The investigators first demonstrated that the component in extra-virgin olive oil responsible for the stinging sensation is oleocanthal by testing the throat-irritant activity of isolated oleocanthal from premium olive oils, and also of synthetic oleocanthal dissolved in nonirritating corn oil. Both tests showed that oleocanthal concentration was positively correlated with irritation intensity. Previously, this pharyngeal sting had only been associated with nonsteroidal anti-inflammatory drugs, such as ibuprofen and related compounds.

The shared irritant properties of oleocanthal and ibuprofen then led the researchers to test whether oleocanthal shares the same pharmacologic activity of ibuprofen. Ibuprofen is a nonselective inhibitor of COX1 and COX2, but it does not inhibit lipoxygenase. The *in vitro* tests showed that, like ibuprofen, oleocanthal dose-dependently inhibits COX1 and COX2, but has no effect on lipoxygenase. How the structures of these two compounds underpin their similar properties is as yet unclear.

The authors conclude that the findings of this study raise the possibility that long-term consumption of extra-virgin olive oil might help protect against several diseases, because of oleocanthal's ibuprofen-like COX-inhibiting activity.

Rachel Murphy

Original article Beauchamp GK *et al.* (2005) Phytochemistry: ibuprofen-like activity in extra-virgin olive oil. *Nature* **437:** 45–46

Long-term outcome of multiple arthroplasty in patients with rheumatoid arthritis

Researchers in Japan have recently published long-term data on the treatment outcome and prognosis of rheumatoid arthritis (RA) patients who have received multiple arthroplasty.

All of the 82 patients in the study had received surgical repair of three or more hip or knee joints between April 1980 and March 2000. Before the first joint surgery, 26% of the patients were able