

Aspirin and Heart Disease

A time-honoured medical maxim states, “primum non nocere.” That’s the way, “first do no harm” used to be taught in medical school when Latin was still part of the curriculum. Basically it means that for any medical intervention the possible benefits should outweigh any potential harm. And that goes for the most popular drug in the world. That drug is aspirin. About 4000 pills are consumed every second of every day, with a stunning total of some 100 billion tablets a year. Chemically, aspirin is acetylsalicylic acid, but the active ingredient is its metabolic breakdown product, salicylic acid. This compound occurs in nature, most famously in the bark of the white willow tree, explaining why willow bark was used as a folk remedy as early as the fifth century BC.

But salicylic acid is a potent irritant of the stomach, which is why it was replaced as a remedy in 1897 by acetylsalicylic acid, synthesized by the German chemist Felix Hoffman. Aspirin was in fact one of the earliest synthetic drugs. It quickly proved its merit as a pain killer, fever reducer and anti-inflammatory substance. And when it was discovered that aspirin reduced the risk of blood clot formation, it found a novel use in the prevention of heart attacks and strokes, both of which can involve the formation of blood clots. Patients who had suffered a heart attack were routinely given small doses of aspirin resulting in a reduced risk of a second heart attack. If that was the case, was it perhaps possible that aspirin could also reduce the risk of having a heart attack in the first place? Seemed plausible enough. Some physicians began to recommend that everyone over the age of fifty take a baby aspirin a day and many took that advice to heart. Almost a third of middle aged people now take a daily dose of aspirin, usually without giving thought to any possible risk. But there is a risk. Because aspirin is an anticoagulant, it can cause serious bleeding. So the question is whether the the chance of preventing a heart attack is greater than the risk of triggering a serious bleed.

A number of studies have examined the risk-benefit ratio of aspirin for heart attack prevention. To prevent a second heart attack, there is no controversy. Taking a small dose of aspirin can reduce the risk of a second heart attack by anywhere from 20-30 percent. But when it comes to primary prevention, the story is different. People with no established heart disease can reduce the risk of any type of heart event by 10 percent and the risk of a non-fatal heart attack by 20%. That sounds great until you factor in the 30 percent increased risk of a serious gastrointestinal bleed.

A thorough analysis of nine randomized trials of aspirin use involving over 100,000 subjects revealed that 162 people have to take aspirin to prevent one nonfatal heart attack, but two of these people would suffer a major bleed. So for someone who has no family history of heart disease, has no serious risk factors such as obesity, hypertension or diabetes and is not a smoker, the risk of aspirin outweighs the benefits. Physicians are equipped to evaluate risk factors and recommend whether taking aspirin is warranted. Nobody should start taking aspirin regularly just because they heard it was a good thing to do. Surveys show that roughly 25% of people who take aspirin to prevent heart disease don’t have any risk factors for heart disease and are more likely to do themselves harm than good. They need to be reminded of “primum non nocere.”