

## President's Page

# Aspirin in Primary Prevention

VLASSIS N. PYRGAKIS

Department of Cardiology, "G. Gennimatas", Hospital, Athens, Greece



Cardiovascular disease is unquestionably one of the main causes of death in Greece and throughout Europe. It is considered responsible for 48% of total deaths (54% in women, 43% in men).<sup>1</sup> About half the deaths from a cardiovascular cause are due to coronary artery disease (CAD), while 1 in 3 are from stroke.

The epidemiology of cardiovascular disease is different in men and women. Men are at higher risk of developing CAD, which appears at an earlier age than in women. The probability of a 40-year-old man having an acute coronary episode during the remainder of his life is 49%, compared to 32% for a woman of the same age. The mean age at which the first myocardial infarction (MI) occurs in men is 65.8 years, whereas in women it is 70.4 years. However, women who suffer MI are more likely to die: the annual mortality from MI in women is 38%, compared to 25% in men.<sup>2,3</sup>

Although the incidence of stroke is higher in men, more women die of stroke overall, probably because of their longer life expectancy. The probability of a woman aged 55-75 years suffering ischaemic stroke during the remainder of her life is around 17-18%, compared to 13-14% for a man of the same age. After the age of 75 years the risk decreases to 14% in women and 8% in men. The underlying biological reasons for these differences in epidemiology have not been fully elucidated.

Platelet aggregation and adhesion constitute a part of the complex process of thrombosis and arterial occlusion, which is the mechanism that underlies the occurrence of acute MI and stroke. Aspirin is widely considered to be useful in the primary and secondary prevention of cardiovascular events, since it inhibits platelet aggregation via the permanent deactivation of cyclooxygenase.<sup>4</sup>

This issue is one that has concerned the medical community for a long time, but it has become topical once again with the recent publication of the new recommendations of the US Preventive Services Task Force regarding aspirin for the primary prevention of cardiovascular events.<sup>5</sup> The new recommendations are in fact an update of the old ones that the same body issued in 2002, whose main disadvantage was that their data on women were very limited, because of the inadequate participation of women in the primary prevention studies published until that time.<sup>6</sup> The new recommendations include the following:

- New data from a large study, the Women's Health Study (WHS), in which 39,786 female health care professionals were randomised to aspirin 100 mg/day or placebo and were followed for a mean of 10.1 years.<sup>7</sup>
- Data from a recent meta-analysis concerning the benefits of aspirin, for each sex, in 6 studies of primary prevention (including the WHS) that enrolled a total of 51,342 women and 44,144 men.<sup>8</sup>

### US Preventive Services Task Force recommendations

1. Aspirin administration is indicated for the prevention of MI in men aged 45-79 years who have an increased risk of infarction and a small risk of gastrointestinal haemorrhage.
2. Aspirin administration is indicated for the prevention of stroke in women aged 55-79 years who have an increased risk of stroke and a small risk of gastrointestinal haemorrhage.
3. There are insufficient data concerning the administration of aspirin for prevention of cardiovascular disease in men and women aged over 80 years.

4. The administration of aspirin for the prevention of stroke in women aged less than 55 years and for the prevention of MI in men aged under 45 years is not indicated.

### Notes

For men, the risk factors for CAD include age, diabetes mellitus, total cholesterol, high density lipoprotein (HDL) cholesterol, high blood pressure, and smoking. Those considered to be at increased risk are those with a 10-year risk of a cardiovascular event of 6-10%.

CAD risk estimation tool:

<http://healthlink.mcw.edu/article/923521437.html>

For women, the risk factors for ischaemic stroke include age, high blood pressure, diabetes mellitus, smoking, history of CAD, and atrial fibrillation. Stroke risk estimation tool:

[www.westernstroke.org/PersonalStrokeRisk1.xls](http://www.westernstroke.org/PersonalStrokeRisk1.xls)

The optimum dose for aspirin in the prevention of cardiovascular events is not known. Primary prevention studies have shown a benefit from various regimens, including doses of from 75-100 mg/day and 100-325 mg/day. A daily dose of around 75 mg seems just as effective as larger doses. The risk of gastrointestinal haemorrhage probably increases with the dose of aspirin.

### References

1. European cardiovascular disease statistics, 2008 edition Steven Allender, Peter Scarborough, Viv Peto and Mike Rayner, British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford. Jose Leal, Ramon Luengo-Fernandez and Alastair Gray, Health Economics Research Centre, Department of Public Health, University of Oxford.
2. Wolf PA, D'Agostino RB, Belanger AJ, Kannel WB. Probability of stroke: a risk profile from the Framingham Study. *Stroke*. 1991; 22: 312-318.
3. Thom T, Haase N, Rosamond W, et al; American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics – 2006 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2006; 113: e85-151.
4. Hernandez-Diaz S, Garcia Rodriguez LA. Cardioprotective aspirin users and their excess risk of upper gastrointestinal complications. *BMC Med*. 2006; 4: 22.
5. Wolff T, Miller T, Ko S. Aspirin for the primary prevention of cardiovascular events: an update of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med*. 2009; 150: 405-410.
6. U.S. Preventive Services Task Force. Aspirin for the primary prevention of cardiovascular events: recommendation and rationale. *Ann Intern Med*. 2002; 136: 157-160.
7. Ridker PM, Cook NR, Lee IM, et al. A randomized trial of low-dose aspirin in the primary prevention of cardiovascular disease in women. *N Engl J Med*. 2005; 352: 1293-1304.
8. Berger JS, Roncaglioni MC, Avanzini F, Pangrazzi I, Tognoni G, Brown DL. Aspirin for the primary prevention of cardiovascular events in women and men: a sex-specific meta-analysis of randomized controlled trials. *JAMA*. 2006; 295: 306-313.