

# Aspirin use for the prevention of cardiovascular disease: the British Women's Heart and Health Study

DA Lawlor, C Bedford, M Taylor and S Ebrahim

## SUMMARY

*Low dose aspirin is effective, safe, and economical in the secondary prevention of cardiovascular disease. We have found that only one-third of post-menopausal women with cardiovascular disease are using aspirin and that the majority of women who are using aspirin are doing so for primary prevention. Improvements in this area of medical practice are both necessary and feasible.*

**Keywords:** aspirin; cardiovascular disease; women; post menopause.

## Introduction

ASPIRIN is effective in the secondary prevention of cardiovascular disease (CVD).<sup>1</sup> Previous surveys of aspirin use in the United Kingdom have been on selected groups or men only.<sup>2</sup> Women are less likely than men to be discharged on aspirin following an acute myocardial infarction,<sup>3</sup> but use in the community is unknown. The National Service Framework states that general practitioners (GPs) need to identify individuals with CVD and that these patients should take aspirin. We present details of aspirin use in participants of the British Women's Heart and Health Study, a nationally representative sample of post-menopausal women.

## Methods

Data from women who participated in the baseline assessment for the British Women's Heart and Health Study between May 1999 and June 2000 were used. These comprise 2141 women aged 60 to 79 years, selected from the age-sex register of one general practice in each of 13 towns in England, Wales, and Scotland. The criteria for selecting the town, the GP, and the participants were the same as those used for the British Regional Heart Study.<sup>4</sup> Data on sociodemographic and lifestyle factors were obtained from a self-completed questionnaire. Inactivity was defined as participating in moderate activity less frequently than two hours per week. Details of aspirin use were obtained from the questionnaire and verified at a nurse-led interview to which the participants were asked to bring their current medication. Details of CVD and diabetes were obtained from a record review of the GP notes.

Social class was defined by the woman's (and her spouse's) longest held occupation and classified according to the Government's latest classification. Region of residence was defined by whether the town of residence was north or south of a line joining Bristol and the Wash.<sup>4</sup> The influence of age, social class, region of residence, and time since most recent diagnosis of CVD on the prevalence of aspirin use were examined using multiple logistic regression. All analyses were undertaken using STATA.

## Results

Of the 2141 participants, 443 (20.7%, 95% confidence interval [CI] = 19.0–22.5) were taking aspirin. Of these, the majority 306 (69.1%, 95% CI = 64.5–73.4) had no GP record of CVD. Of the 2141 participants, 401 had a GP record of a CVD event and 137 (34.1%, 95% CI = 29.5–39.0) of these reported regular aspirin use; 129 (94%) of these were doing so on the doctor's advice. Specific CVD diagnoses, having an invasive procedure, time since diagnosis, and area of

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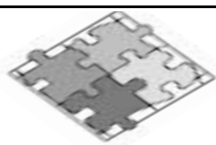
## HOW THIS FITS IN

## What do we know?

- Low dose aspirin is safe, effective, and economical in the secondary prevention of cardiovascular disease.
- Cardiovascular disease is a major cause of morbidity and mortality in older women.

## What does this paper add?

- In a sample of over 2000 women aged 60 to 79 years from 13 towns across England, Scotland and Wales, only 34% of those with cardiovascular disease were taking aspirin.
- The majority of women taking aspirin were doing so for primary prevention, where risk may outweigh benefit.
- Women taking aspirin were more likely to have diabetes or hypertension but were also more likely to lead healthy lifestyles, be from higher social classes, and have a husband with cardiovascular disease.



residence did not effect the likelihood of using aspirin for secondary prevention (Table 1). Women who had no recorded occupation (most likely lifelong housewives) and younger women had reduced odds of using aspirin.

Of 306 women using aspirin but with no record of CVD,

282 (92.1%, 95% CI = 88.5–94.9) gave CVD prevention as the reason and 76% of these were using aspirin on the doctor's advice. These women were more likely to be hypertensive or diabetic compared with all other women but were also more likely to have a healthy lifestyle, have been in a professional or managerial job, and have a husband with CVD (Table 2). None of the results were affected by exclusion of women with a history of arthritis or peptic ulcer.

## Discussion

In this study, only one-third of women with GP-recorded CVD were using aspirin. This is similar to aspirin use among men in the British Regional Heart Study when they were surveyed in 1992.<sup>2</sup> However, a more recent (1996) re-survey of this group found that 59% of these men were taking aspirin (P Whincup, personal communication, 2001). Sex differences in the management of CVD, particularly in secondary care, have been reported elsewhere.<sup>3</sup> The average GP list size is 1900; approximately 180 of these will be women aged 60 to 79 years old. From our results, 34 of these will have a GP record of CVD. Although there will be variation between GPs, our results suggest that each GP on average has only 20 elderly women to identify and treat to meet National Service Framework guidance: this should be feasible. Both this and the men's study<sup>2</sup> found that older patients were more likely

Table 1. Factors associated with aspirin use in UK women aged 60 to 79 years old with a GP record of cardiovascular disease (myocardial infarction (MI), angina, stroke, transient ischaemic attack (TIA), angiography, coronary artery bypass graft, carotid endarterectomy) n = 401.

|   | n   | Number using aspirin | Percentage using aspirin (95% confidence interval) | Adjusted odds ratio <sup>a</sup> of being on aspirin (95% confidence interval) |
|---|-----|----------------------|--|--|
| Specific CVD diagnosis <sup>b</sup>     |     |                      |  |  |
| MI                                      | 87  | 35                   | 40.2 (29.8–51.3)                                   | 1.7(0.8–3.5), P = 0.2  |
| Angina                                  | 223 | 70                   | 31.4 (25.4–37.9)                                   | 0.7 (0.4–1.2), P = 0.2   |
| Stroke                                  | 43  | 10                   | 23.3 (11.8–38.6)                                   | 0.8 (0.2–2.2), P = 0.6   |
| TIA                                     | 37  | 17                   | 45.9 (29.5–63.1)                                   | 1.0 (0.4–2.5), P = 0.9   |
| Invasive procedure                      |     |                      |  |  |
| No                                      | 358 | 122                  | 25.0 (29.2–39.2)                                   | 1  |
| Yes                                     | 43  | 15                   | 34.9 (21.0–50.9)                                   | 0.8 (0.3–2.0), P = 0.6   |
| SEC <sup>c</sup> (woman's occupation)   |     |                      |  |  |
| I                                       | 31  | 20                   | 64.5 (45.4–80.8)                                   | 1  |
| II                                      | 50  | 33                   | 66.0 (51.2–78.8)                                   | 1.7 (0.5–5.4), P = 0.4   |
| III                                     | 110 | 72                   | 65.5 (57.6–76.1)                                   | 1.2 (0.5–3.4), P = 0.7   |
| UK                                      | 210 | 12                   | 5.7 (3.0–9.8)                                      | 0.1 (0.02–0.3), P < 0.01   |
| SEC <sup>c</sup> (husband's occupation) |     |                      |  |  |
| I                                       | 50  | 31                   | 68.6 (47.2–75.4)                                   | 1  |
| II                                      | 23  | 15                   | 65.2 (42.7–83.6)                                   | 0.9 (0.2–3.1), P = 0.8   |
| III                                     | 108 | 68                   | 63.0 (53.1–72.0)                                   | 1.1 (0.5–2.9), P = 0.7   |
| UK                                      | 220 | 23                   | 10.5 (6.7–15.3)                                    | 0.4 (0.2–1.3), P = 0.1   |
| Area of residence in UK                 |     |                      |  |  |
| South                                   | 180 | 59                   | 32.8 (26.0–40.2)                                   | 1  |
| North                                   | 221 | 78                   | 35.3 (29.0–42.0)                                   | 1.3 (0.7–2.6), P = 0.4   |
| Date of diagnosis                       |     |                      |  |  |
| Before 1 January 1995                   | 150 | 59                   | 39.3 (31.5–47.6)                                   | 1  |
| After 1 January 1995                    | 164 | 53                   | 32.3 (25.2–40.0)                                   | 0.5 (0.2–1.1), P = 0.09  |
| Age (years)                             |     |                      |  |  |
| 60–69                                   | 147 | 53                   | 36.1 (28.3–44.4)                                   | 1  |
| 70–79                                   | 254 | 84                   | 33.1 (27.3–39.2)                                   | 1.7 (1.0–3.3), P = 0.06  |

<sup>a</sup>Adjusted for socioeconomic class, area of residence, date of diagnosis, and age. <sup>b</sup>These categories are defined so that women appear only once — in the highest category in the table. Odds ratios are the odds of being on aspirin with the specific diagnosis compared with the odds of being on aspirin with any other CVD diagnosis. <sup>c</sup>SEC UK Governments new Socioeconomic Classification: I = Managerial and Professional Class; II = Intermediate Class; III = Working Class; UK = no recorded occupation.

Table 2. Prevalence of cardiovascular disease risk factors in women taking aspirin for primary prevention (n = 282) compared with all other women in the British Women's Heart and Health Study (n = 1859).

|  | Percentage taking aspirin for primary prevention of CVD (95% CI) | Percentage not taking aspirin for primary prevention of CVD (95% CI) |
|--|--|--|
| Hypertensive   | 50.0 (44.0–55.9)   | 31.9 (29.8–34.1)   |
| Diabetic   | 8.0 (5.2–12.0)   | 4.5 (3.1–5.0)  |
| Current smoker   | 8.4 (5.7–11.0)   | 12.5 (11.1–14.1)   |
| Low-fat diet   | 17.0 (13.3–21.5)   | 13.9 (12.4–15.6)   |
| Inactive   | 33.9 (31.7–36.1)   | 41.0 (36.1–46.8)   |
| Longest occupation of woman professional or managerial | 15.0 (13.4–16.7)   | 11.0 (7.8–15.2)  |
| Husband has CVD  | 32.0 (27.3–37.4)   | 23.0 (21.1–25.0)   |

to be using aspirin. It may be that, with younger patients, newer treatments are used at the expense of simpler, more effective measures.

Over two-thirds of the women taking aspirin were doing so for primary prevention. This may be related to their higher prevalence of hypertension and diabetes. In addition, although our data is not able to deduce how much of the use of aspirin in primary prevention is influenced by the patient's request, the healthier lifestyles, higher social class, and higher prevalence of husbands with CVD in this group would suggest that this could be a factor. Even at low doses, long-term aspirin use is associated with an increased risk of gastrointestinal haemorrhage.<sup>5</sup> When aspirin is used in the secondary prevention of CVD the benefits appear to outweigh harm; in primary prevention the reverse is true.<sup>5,6</sup>

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