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Aspirin use for the primary prevention of coronary heart disease: A population-based study in Switzerland

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Abstract

Objective. To determine the patterns of aspirin use for the primary prevention of coronary heart disease (CHD). Aspirin for primary prevention has a more favorable risk/benefit profile among adults with high CHD risk than among low-risk adults.

Method. We studied 5725 adults aged 35–75 without cardiovascular disease in a population-based study in Switzerland in 2003–2006. We examined regular aspirin use for cardiovascular prevention according to 10-year CHD risk and other cardiovascular risk factors.

Results. One hundred seventy-four participants used aspirin. Aspirin use increased with 10-year CHD risk, from 2.6% in persons with risk <6% (low risk) to 9% in those with risk 6–20% (intermediate risk, $p=0.001$), but no adults with risk ≥20% used aspirin. Participants with cardiovascular risk factors were more likely to use aspirin. However, 1.9% adults with risk <6% and no diabetes used aspirin. Using a population perspective, a more appropriate aspirin use would reduce up to 2,348/24,310 CHD deaths expected over 10 years in Switzerland, and avoid about 700 gastrointestinal bleedings and hemorrhagic strokes among those not eligible.

Conclusion. Individuals at intermediate CHD risk and diabetics are more likely to take aspirin, but there are significant opportunities for improvement. The underuse of aspirin for those at risk coexists with an overuse among those at low risk.

Keywords: Aspirin; Primary prevention; Coronary disease

Introduction

For persons without cardiovascular disease, the benefit of aspirin to prevent coronary heart disease (CHD) has been controversial (United States Preventive Services Task Force, 1996). Recently, four major trials and three meta-analyses (Hayden et al., 2002; Sanmuganathan et al., 2001; Ridker et al., 2005) found that aspirin for the primary prevention of CHD was beneficial among patients with high cardiovascular risk in samples of mainly men. In women, aspirin reduces the risk of ischemic stroke (Ridker et al., 2005).

In Europe, the Third Joint Task Force on Cardiovascular Disease Prevention (De Backer et al., 2003) recommends aspirin for primary prevention in adults with diabetes or well-controlled hypertension and in men at high risk, defined as a 10-year risk ≥5% of fatal cardiovascular events, which approximately corresponds to a 10-year CHD risk ≥20% (De Backer et al., 2003). The Swiss Society of Cardiology recommends aspirin for primary prevention in individuals with diabetes or 10-year CHD risk ≥10% (SGLA, 2005). United States (US) guidelines recommend aspirin for individuals with a 10-year CHD risk ≥6% (intermediate or high risk) (USPSTF, 2002; Pearson et al.,

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Table 1
Characteristics of the study population without cardiovascular disease according to aspirin use (n=5,725)

Characteristics	Percentage of study population	Rate of aspirin use, %	Unadjusted odds ratio of aspirin use (95% CI)	p [a]
Overall population (n=5,725)		3.0		
Demographic factors				
Age (n=5,725)				<0.001
35–44 years	30.1	0.2	1.0	
45–54 years	29.4	0.7	2.29 (1.04–5.05)	
55–64 years	26.8	3.7	10.20 (5.10–20.40)	
≥65 years	13.7	7.0	17.77 (8.81–35.83)	
Gender (n=5,725)				0.001 [b]
Men	46.5	3.8	1.0	
By age				<0.001
35–44 years	32.6	0.8	1.0	
45–54 years	30.2	1.7	2.18 (0.87–5.42)	
55–64 years	24.5	6.9	9.12 (4.08–20.36)	
≥65 years	12.7	10.6	14.61 (6.44–33.19)	
Women	53.5	2.4	0.61 (0.45–0.82)	
By age				<0.001
35–44 years	27.9	0.2	1.0	
45–54 years	28.7	0.7	2.94 (0.59–14.60)	
55–64 years	28.9	3.7	16.56 (3.96–69.22)	
≥65 years	14.6	7.2	31.86 (7.59–133.75)	
Education (n=5,721)				0.03
Less than high school	56.8	3.4	1.0	
High school graduate	24.0	2.9	0.85 (0.59–1.23)	
Postsecondary	19.2	2.1	0.61 (0.38–0.95)	
Cardiovascular risk factors				
10-year CHD risk (n=5,725) [c]				
<6%	92.8	2.6	1.0	
6–9.9%	5.0	9.4	3.91 (2.54–6.01)	<0.001
10–19.9%	1.9	8.1	3.31 (1.64–6.67)	0.001
≥20%	0.3	0	NA	
Diabetes mellitus (n=5,725)				<0.001
No	95.6	2.1	1.0	
Yes	4.4	24.2	15.01 (10.64–21.19)	
By age				0.04
35–44 years	1.6	14.8	1.0	
45–54 years	2.9	14.3	0.96 (0.25–3.62)	
55–64 years	6.5	25.0	1.92 (0.60–6.08)	
≥65 years	9.2	33.3	2.88 (0.89–9.26)	
Physical activity, min/week (n=5,715)				0.51
<15	8.5	4.1		
15–29	8.3	3.0	0.71 (0.35–1.42)	
30–59	31.6	2.6	0.61 (0.36–1.04)	
60–149	46.3	3.0	0.71 (0.43–1.17)	
≥150	5.4	5.2	1.28 (0.65–2.51)	
Smoking status (n=5,725)				
Never	41.0	2.3	1.0	
Former	31.8	4.3	1.90 (1.34–2.71)	<0.001
Current	27.2	2.7	1.18 (0.78–1.77)	0.44
Hypertension (n=5,725)	37.1	6.1	5.27 (3.73–7.45)	<0.001
Hypercholesterolemia (n=5,725) [d]	31.4	5.6	3.06 (2.26–4.16)	<0.001
BMI, kg/m^2 (n=5,724)				<0.001
<25	49.1	1.5	1.0	
25–29.9	36.2	3.6	2.50 (1.70–3.68)	
30–34.9	11.0	5.3	3.74 (2.35–5.97)	
35–39.9	2.8	11.7	8.97 (5.07–15.85)	
≥40.0	1.0	10.7	8.10 (3.29–19.94)	
Family history of CHD (n=5,725) [e]	28.6	4.0	1.51 (1.11–2.07)	0.01
Statin use (n=5,725)	8.2	16.2	10.15 (7.40–13.93)	<0.001