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Regular use of aspirin for cardiovascular disease prevention in Italy

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ABSTRACT

Objective. Only a few European studies focused on aspirin use in the general population. We provide updated information on the prevalence and determinants of regular aspirin use for the prevention of cardiovascular disease (CVD) in the Italian adult population.

Method. We used data from a survey conducted in Italy in 2013, on a sample of 3000 individuals, representative of the general Italian population aged ≥15 years.

Results. Overall, 10.9% of Italians reported a regular use of aspirin, 11.2% of men and 10.5% of women. Aspirin use significantly increased with age. The highest prevalence of aspirin use was observed among the elderly (30.3%), ex-smokers (22.6%), and in individuals with a diagnosis of diabetes (52.0%), hypertension (42.6%) or hypercholesterolemia (38.6%). After adjustment for several covariates, no significant heterogeneity in aspirin use was observed according to education, body mass index, and physical activity. Only 1.2% of low CVD risk individuals regularly used aspirin versus 48.3% of individuals with high CVD risk.

Conclusion. About 3.4 million high CVD risk Italians do not regularly use aspirin for primary or secondary prevention. Thus, more widespread preventive strategy is recommended for this population, once individual benefits of regular aspirin use exceed harms.

Introduction

Aspirin has a beneficial effect in the prevention of cardiovascular disease (CVD) (Cleland, 2013; Hennekens and Dalen, 2013) and probably of a number of common cancers (Bosetti et al., 2012; Cleland, 2013; Cuzick et al., 2009). However, the use of aspirin may cause gastrointestinal bleeding (Cleland, 2013; Hennekens and Dalen, 2013; U.S. Preventive Services Task Force, 2009). Thus, aspirin use as primary prevention for CVD should be recommended to individuals whose absolute benefits outweigh risks, i.e., individuals with high risk of CVD (Hennekens and Dalen, 2013; U.S. Preventive Services Task Force, 2009).

Only a few studies provided information on the prevalence of aspirin or other non-steroidal anti-inflammatory drug (NSAID) use in Europe (Fosbol et al., 2008; Rodondi et al., 2008) and, to our knowledge, only one survey provided information on NSAID use in the general Italian population (Motola et al., 2004). That survey showed that in 2002 NSAIDs were regularly used (i.e., daily or frequently for more than 6 months) by 4.2% of Italian adults. Another Italian study on 540,984 community outpatients of 400 Italian general practitioners (GPs) reported that in 2005 8.3% of individuals had at least one aspirin prescription (Filippi et al., 2011). Other two Italian studies investigated regular use of aspirin in selected population subgroups, such as cardiologists (Temporelli et al., 2013) and elderly adults (Pilotto et al., 2003).

In Italy, decreased trends in mortality for CVD (Araujo et al., 2013) and aspirin-related cancers (Arfe et al., 2011) have been observed over the last decade. We provide here updated information on the prevalence and determinants of aspirin use in the general Italian population, given the limited data on the issue.

Methods

We used data from a survey conducted in 2013 on a sample of 3000 subjects (1442 men and 1558 women), representative of the general Italian population aged ≥15 years (i.e., 51.1 million inhabitants) in terms of sex, age, geographic area, and socio-economic characteristics.

Participants were selected through a representative multistage sampling from 116 municipalities in the 20 Italian regions. In the municipalities considered, individuals were randomly sampled from electoral rolls, within strata

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defined by sex and age group, in order to be representative of the demographic structure of the population. Unavailable participants were replaced by their neighbors (living in the same floor/building/street) with the same sex and age group. Statistical weights were used to assure representativeness of the Italian population aged 15 years or over.

Individuals were interviewed through a structured questionnaire in the context of a computer-assisted personal in-house interview (CAPI). Besides general information on demographic, socio-economic and other selected characteristics, participants were asked about their regular use of aspirin or other NSAIDs for the prevention of CVD or cancer. Moreover, participants were asked to report previous diagnosis of diabetes, hypertension, and hypercholesterolemia (i.e., cholesterol > 200 mg/dl). We computed body mass index (BMI) as the ratio between weight (kg) and height (m^2); BMI was then categorized as: underweight (BMI < 18.5 kg/m^2), normal weight (18.5 ≤ BMI ≤ 24.9 kg/m^2), overweight (25.0 ≤ BMI ≤ 29.9 kg/m^2) and obese (BMI ≥ 30.0 kg/m^2). On the basis of validated CVD risk charts and guidelines (Perk et al., 2012; U.S. Preventive Services Task Force, 2009), we created an ad hoc score to categorize individuals according to their CVD risk, on the basis of 6 major CVD risk factors (i.e., age, diabetes, smoking, obesity, hypertension, and hypercholesterolemia).

Odds ratios (OR) and corresponding 95% confidence intervals (CI) for aspirin use versus non use were estimated by unconditional multiple logistic regression models after adjustment for sex, age (12 categories: 15–24, 25–34, ..., 80–84, ≥85 years), level of education, geographic area, smoking status, BMI, physical activity, and history of diabetes, hypertension, and hypercholesterolemia.

Results

Overall, 10.9% of Italians aged ≥15 years reported a regular use of aspirin or other NSAIDs. Users were more frequently men (11.2%) than women (10.5%; Table 1). Aspirin use increased with age (1.0% in individuals aged 15–44 years, 10.3% in 45–64, and 30.3% in ≥65 years). The highest prevalence of aspirin use was observed in less educated individuals (20.2%), central Italy (16.2%), ex-smokers (22.6%), obese adults (16.9%), individuals reporting a low physical activity (13.6%), and individuals with a previous diagnosis of diabetes (52.0%), hypertension (42.6%) or hypercholesterolemia (38.6%). In multivariate analysis, ORs were significantly increased for individuals aged 45–64 years (OR: 3.59) and ≥65 years (OR: 5.88) compared to those aged 15–44 years (p for trend <0.001), for central compared to northern Italy (OR: 1.78), for ex-smokers compared to never smokers (OR: 1.59), and for individuals with a history of diabetes (OR: 2.35), hypertension (OR: 6.45) and hypercholesterolemia (OR: 3.06) compared to those with no corresponding disease. No significant heterogeneity in aspirin use was observed according to level of education and BMI, and a measure of physical activity. In a sensitivity analyses, excluding mutual adjustment for various comorbidities, the OR of aspirin use was 4.00 (95% CI: 2.65–6.03) for individuals with a history of diabetes, 9.47 (95% CI: 6.88–13.04) for hypertension, and 5.35 (95% CI: 4.02–7.12) for hypercholesterolemia.

Table 1
Percent prevalence (%) of regular use of aspirin or other non-steroidal anti-inflammatory drugs for the prevention for cardiovascular diseases and corresponding odds ratios (OR) and 95% confidence intervals (CI), overall and in strata of selected characteristics. Italy, 2013.

	N	% of aspirin use (95% CI)	OR (95% CI) for aspirin use vs. non use[a]
Total	3000	10.9 (9.7–12.0)	
Sex			
Men	1442	11.2 (9.6–12.8)	1[b]
Women	1558	10.5 (9.0–12.0)	0.86 (0.63–1.18)
Age group (years)			
15–44	1343	1.0 (0.5–1.5)	1[b]
45–64	948	10.3 (8.3–12.2)	3.59 (1.92–6.70)
≥65	709	30.3 (26.9–33.7)	5.88 (3.09–11.2)
p for trend			<0.001
Education			
No/elementary/middle school	1193	20.2 (17.9–22.5)	1[b]
High school	1362	5.1 (4.0–6.3)	0.78 (0.54–1.12)
University or higher	445	3.3 (1.7–5.0)	0.72 (0.38–1.35)
p for trend			0.144
Geographic area			
Northern Italy	1379	9.7 (8.1–11.2)	1[b]
Central Italy	596	16.2 (13.3–19.2)	1.78 (1.22–2.58)
Southern Italy and islands	1025	9.3 (7.5–11.1)	0.92 (0.65–1.31)
Smoking status			
Never smoker	1991	9.6 (8.3–10.9)	1[b]
Ex-smoker	392	22.6 (18.4–26.7)	1.59 (1.08–2.33)
Current smoker	616	7.5 (5.4–9.6)	0.99 (0.65–1.52)
Body mass index (BMI)			
Underweight/normal weight	1727	7.6 (6.4–8.9)	1[b]
Overweight	878	14.5 (12.2–16.9)	0.98 (0.70–1.36)
Obese	395	16.9 (13.2–20.6)	1.03 (0.68–1.57)
p for trend			0.921
Physical activity (minutes of walk/day)			
<30	1229	13.6 (11.6–15.5)	1[b]
30–60	1204	9.0 (7.4–10.6)	0.80 (0.57–1.12)
>60	567	8.9 (6.6–11.2)	0.89 (0.59–1.36)
p for trend			0.402
Diabetes			
No	2865	8.9 (7.9–10.0)	1[b]
Yes	135	52.0 (43.5–60.4)	2.35 (1.50–3.68)
Hypertension			
No	2403	3.0 (2.3–3.6)	1[b]
Yes	596	42.6 (38.6–45.6)	6.45 (4.59–9.04)
Hypercholesterolemia			
No	2436	4.4 (3.6–5.2)	1[b]
Yes	564	38.6 (34.6–42.6)	3.06 (2.24–4.19)

[a] Estimated using unconditional multiple logistic regression models after adjustment for sex, age, level of education, geographic area, smoking status, BMI, physical activity, and history of diabetes, hypertension, and hypercholesterolemia.
[b] Reference category.