Aspirin Use Among Adults in the U.S.

Results of a National Survey

Craig D. Williams, PharmD, Andrew T. Chan, MD, MPH, Miriam R. Elman, MPH, Alyson H. Kristensen, MPH, W. Fred Miser, MD, Michael P. Pignone, MD, MPH, Randall S. Stafford, MD, PhD, Jessina C. McGregor, PhD

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Introduction: The use of aspirin in patients without cardiovascular disease remains controversial. Patients' understanding of the risks and benefits of aspirin likely contribute to the decision of whether or not to use aspirin regularly. The purpose of this study is to assess patients' knowledge of aspirin and identify factors contributing to regular use.

Methods: A survey of U.S. adults aged 45–75 years was performed to ascertain aspirin use and factors that may be associated with use. Multivariate logistic regression was used to identify predictors of current use of aspirin among those with a primary prevention indication. The survey was completed in 2012 with data analysis performed in 2013.

Results: Among 2,509 respondents, 52% reported current aspirin use. Among 2,039 respondents without a history of cardiovascular disease, current use of aspirin was 47%. Regular use of aspirin for primary prevention was associated with the presence of major cardiovascular disease risk factors (OR=3.0, 95% CI=2.4, 3.7), high self-assessed knowledge of aspirin (OR=9.1, 95% CI=5.2, 15.7), and having discussed aspirin therapy with a provider (OR=25.9, 95% CI=19.7, 34.1). Several markers of healthy lifestyle choices were also associated with regular use. After multivariate analysis, the strongest independent predictor of regular aspirin use was having discussed aspirin therapy with a provider (OR=23.79, 95% CI=17.8, 31.5).

Conclusions: Approximately half of the nationwide survey of U.S. adults reported regular aspirin use. Among those with a primary prevention indication, having discussed aspirin with a provider was the strongest predictor of regular use.

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Introduction

Aspirin reduces recurrent cardiovascular disease (CVD) events in individuals with CVD, as well as first events in those with high CVD risk.[1] Recommendations regarding aspirin use for primary prevention differ among organizations. Although aspirin is recommended for moderately high-risk individuals by the U.S. Preventive Services Task Force,[2] it is not recommended for primary prevention for any risk level by the European Society of Cardiology.[3] Recently, the U.S. Food and Drug Administration also recommended[4] against routine use of aspirin for primary prevention but stated it may still be appropriate when prescribed by a healthcare provider to higher-risk patients.

New data suggesting that aspirin prevents certain forms of cancer may add to the potential benefits of regular use.[5] These new findings, along with conflicting recommendations for primary prevention of CVD, have led to renewed efforts to clarify aspirin's role in individuals without CVD.[6,7]

Despite ongoing debate regarding the optimal role of aspirin in prevention, its use among U.S. adults is increasing. A recent report found a 57% increase in regular use between 2005 and 2010.[8] Respondents' perceptions about aspirin, their CVD health, and their

From the Department of Pharmacy Practice (Williams, Elman, McGregor), Oregon State University/Oregon Health & Science University College of Pharmacy, Portland, Oregon; Division of Gastroenterology (Chan), Massachusetts General Hospital, Boston, Massachusetts; Partnership for Prevention (Kristensen), Washington, District of Columbia; Division of Family Medicine (Miser), The Ohio State University, Columbus, Ohio; Department of Medicine (Pignone), University of North Carolina, Chapel Hill, North Carolina; and the Department of Medicine (Stafford), Stanford University, Palo Alto, California

Address correspondence to: Craig D. Williams, PharmD, Oregon State University/Oregon Health & Science University College of Pharmacy, 2730 SW Moody Ave., CL5CP, Portland OR 97201. E-mail: williacr@ohsu.edu.

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interactions with care providers likely impact the decision to use aspirin on a daily basis. To better understand the current level of regular aspirin use and predictors of use, U.S. adults were surveyed about their aspirin use and factors that might be associated with that decision.

Methods

Survey Development and Administration

A 25-question web-based survey was developed to assess the following domains: use of aspirin by adults in the U.S., beliefs about the risks and benefits of aspirin, self-assessed CVD risk, and discussions about regular aspirin use with healthcare providers. The survey also collected respondent demographic data as well as personal and family medical history. All collected data were de-identified. An exemption from oversight was granted by the Oregon Health & Science University IRB.

The survey was prepared by the Council on Aspirin for Health and Prevention (CAHP). CAHP is convened by Partnership for Prevention, a non-profit organization focused on disease prevention and health promotion. The survey was administered through Survey Sampling International (SSI) in August 2012. SSI maintains a library of online sampling databases to allow selection of samples that reflect specific populations. The sample for this survey was adults aged between 45 and 75 years living in the U.S. This age range was chosen because it defines adults with a sufficiently high CVD risk to derive benefit from aspirin therapy and it also represents a common age range that has been studied in randomized trials. A dynamic sampling platform was constructed to identify potential study subjects. Real-time eligibility was assessed and potential survey subjects were notified electronically of their eligibility. Consenting subjects who completed the survey were offered a small incentive such as frequent flyer miles or rewards program points with various companies.

Survey Definitions and Analysis

The primary outcome of interest was regular aspirin use, defined by answering *currently* to the question *Please indicate if you are currently on, have previously taken, or have never taken aspirin on a regular basis for one or more of the following reasons: prevention of a heart attack; prevention of stroke; prevention of cancer; prevention of dementia or Alzheimer's; relief of pain, inflammation or swelling; prevention of blood clots.*

Respondents with a higher objective CVD risk were identified based upon age, sex, and number of self-reported CVD risk factors as defined in Table 1. Major risk factors were defined as current smoking; personal history of high cholesterol, hypertension, diabetes, or metabolic syndrome; and a family history of CVD. Respondents were also asked to provide a subjective assessment of their CVD risk by identifying themselves as being at greater than average, average, or less than average risk of heart attack or stroke over the next 10 years compared to individuals of the same age and sex. Analysis of the association of aspirin use with prostate cancer was limited to men and association with breast cancer limited to women.

A subgroup of respondents having an indication for aspirin use for secondary prevention of CVD was identified as persons who responded *yes* when asked whether they had a history of CVD (i.e., had ever been told they had stroke, heart attack, or angina). Of the remaining respondents, individuals not currently using non-aspirin anti-thrombotic agents were considered the primary prevention cohort.

Table 1. Criteria Used to Identify Patients with Higher Objective CVD risk[a]

	No. of risk factors	
Age group, years	**Men**	**Women**
45–54	≥3	≥4
55–64	≥2	≥3
65–75	≥1	≥2

[a]Risk factors include (1) self-reported family history of stroke, angina, heart attack, or heart surgery; (2) current smoking; (3) high cholesterol; (4) hypertension; (5) diabetes, metabolic syndrome, pre-diabetes, or insulin resistance.
CVD, cardiovascular disease.

Chi-squared and *t* tests were used to compare patient characteristics, including personal and family history as well as knowledge and beliefs on aspirin use according to current, previous, or never regular aspirin use. We constructed simple and multivariable logistic regression models to assess the relationship between current aspirin use and predictors of interest. Previous aspirin users were excluded from this analysis. The multivariable logistic regression model was constructed using stepwise selection. Predictors of interest, including discussion of aspirin with a healthcare provider, objective CVD risk, and subjective CVD risk, were forced into the model along with potential confounders including age and sex. All bivariate associations at the $p<0.20$ level between the outcome and aforementioned covariates were considered for inclusion in the final multivariable model. Predictors found to significantly contribute to the model at $p<0.05$ or to have a confounding effect were retained. A confounding effect was defined as a change of at least 10% in the measure of association between discussion with a healthcare provider and current aspirin use. AORs and corresponding 95% CIs were calculated from the final model. All analyses were conducted in 2013 using SAS, version 9.2.

Results

The survey was initiated by 2,724 respondents and completed by 2,537 (93%). Respondents outside of the specified age range (n=28) were excluded. Data were analyzed for the remaining 2,509 respondents; their characteristics are presented in Table 2. Briefly, 41% of respondents were women and 38% were aged ≥65 years. Major risk factors for CVD were prevalent, with 49% of respondents reporting high cholesterol, 49% reporting hypertension, and 61% reporting either current or previous smoking.

Based on their survey responses, 301 (12%) respondents were classified as the secondary prevention cohort; 2,039 (81%) as the primary prevention cohort; and 169 (7%)