Family practice patients' use of acetylsalicylic acid for cardiovascular disease prevention

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Abstract

Objective To determine the prevalence of acetylsalicylic acid (ASA) use among family practice patients and the proportions of patients using ASA for primary and secondary cardiovascular prevention.

Design Cross-sectional, self-reported, waiting room questionnaire.

Setting Two family medicine clinics in Alberta.

Participants Patients 50 years of age and older.

Main outcome measures Overall prevalence of ASA use, proportion of ASA use for primary or secondary cardiovascular prevention, ASA use by patient age and sex, the proportion of patients who initiated ASA therapy on the advice of a physician, adverse events, and patient beliefs about ASA therapy.

Results A total of 807 patients completed the questionnaire; the response rate was 89.1%. Overall, 39.8% of patients reported taking ASA regularly. Of those who took ASA, 87.0% did so for cardiovascular prevention (53.1% for primary prevention and 46.9% for secondary prevention). Of patients taking ASA for primary prevention, 62.8% did so upon the advice of their family physicians. Patients who took ASA believed that the benefits of taking ASA outweighed the risks; those who did not take ASA were unsure of the benefit-to-risk profile.

Conclusion Many family practice patients take ASA, and more than half of those taking ASA take it for primary cardiovascular prevention. Family physicians appear to have an influence on patients' decisions to take ASA. Educating family physicians and patients about the potential benefits and risks of ASA therapy would help promote the use of ASA in those who might receive the greatest overall benefit.

EDITOR'S KEY POINTS

- This study showed that 39.8% of family practice patients took acetylsalicylic acid (ASA) regularly; 87.0% did so for cardiovascular prevention (53.1% for primary prevention and 46.9% for secondary prevention).
- A significantly greater proportion of men than women took ASA for cardiovascular prevention ($P<.001$). There was also a significant association ($P<.001$) between ASA use and age, as patients in the 70- to 79-year-old age group were more likely to use ASA for cardiovascular prevention than patients in the 50- to 59-year-old age group were. The proportion of patients using ASA for secondary cardiovascular prevention was higher in the older age groups.
- Although most patients appear to initiate the use of ASA upon the advice of their family physicians, about one-quarter start taking ASA themselves for primary prevention. Family physicians and patients need to be educated about the potential benefits and risks of ASA therapy. It is likely that many patients of relatively low cardiovascular risk are taking ASA for primary cardiovascular prevention, while many of those who might benefit from ASA for secondary prevention are not taking it.

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Utilisation de l'acide acétylsalicylique pour prévenir les maladies cardiovasculaires chez les patients de pratiques de médecine familiale

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Résumé

Objectif Déterminer la prévalence d'utilisation de l'acide acétylsalicylique (AAS) chez des patients de médecine familiale et la proportion de ceux qui utilisent cet agent en prévention cardiovasculaire primaire ou secondaire.

Type d'étude Étude transversale basée sur les réponses des patients à un questionnaire complété en salle d'attente.

Contexte Deux cliniques de médecine familiale de l'Alberta.

Participants Patients de 50 ans et plus.

Principaux paramètres à l'étude Prévalence globale de l'utilisation de l'AAS, proportion de l'utilisation de l'AAS en prévention cardiovasculaire primaire et secondaire, utilisation selon l'âge et le sexe des patients, proportion de ceux qui avaient commencé à prendre de l'AAS sur le conseil d'un médecin, effets indésirables et croyances des patients au sujet du traitement à l'AAS.

Résultats Un total de 807 patients ont complété le questionnaire, pour un taux de réponse de 89,1 %. Dans l'ensemble, 39,8 % des patients déclaraient prendre de l'AAS régulièrement. Parmi ces derniers, 87,0 % l'utilisaient en prévention cardiovasculaire (53,1 % en prévention primaire et 46,9 % en prévention secondaire). Parmi les patients qui en consommaient en prévention primaire, 62,8 % le faisaient sur le conseil de leur médecin de famille. Les patients qui prenaient de l'AAS croyaient qu'il y avait plus d'avantages que d'inconvénients à prendre de l'AAS : ceux qui n'en prenaient pas ne connaissaient pas suffisamment le rapport avantages/risques.

Conclusion Plusieurs patients des cliniques de médecine familiale prennent de l'AAS et plus de la moitié d'entre eux le font pour la prévention cardiovasculaire primaire. Le médecin semble avoir une influence pour décider les patients à prendre de l'AAS. Renseigner les médecins de famille et les patients sur les avantages et les risques potentiels d'un traitement à l'AAS aiderait à promouvoir l'utilisation de l'AAS auprès de ceux qui pourraient en profiter le plus.

Cet article a fait l'objet d'une révision par des pairs.
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POINTS DE REPÈRE DU RÉDACTEUR

- Cette étude a montré que 39,8 % des patients de médecine familiale prenaient de l'acide acétylsalicylique (AAS) de façon régulière : 87,0 % en prenaient pour la prévention cardiovasculaire (53,1 % pour la prévention primaire et 46,9 % pour la prévention secondaire).
- Une proportion significativement plus élevée d'hommes que de femmes prenaient de l'AAS pour la prévention cardiovasculaire ($P<,001$). On notait également une association significative ($P<,001$) entre le fait de prendre de l'AAS et l'âge des patients, les 70-79 ans étant plus susceptibles que les 50-59 ans d'en prendre pour la prévention cardiovasculaire. La proportion de patients qui prenaient de l'AAS pour la prévention secondaire était plus élevée dans les groupes plus âgés.
- Même si la plupart des participants semblent avoir commencé à prendre l'AAS sur l'avis de leur médecin de famille, environ un quart d'entre eux avaient décidé eux-mêmes d'en prendre à titre de prévention primaire. Il faudrait renseigner les médecins de famille et les patients sur les avantages et les risques éventuels d'un traitement à l'AAS. Il est probable que plusieurs patients qui présentent un risque cardiovasculaire relativement faible prennent de l'AAS pour la prévention cardiovasculaire primaire, alors que plusieurs de ceux qui auraient avantage à en prendre pour la prévention secondaire n'en prennent pas.

Acetylsalicylic acid (ASA) is commonly used to decrease the risk of future cardiovascular events. In the United States, between 36% and 41% of patients 40 years of age and older use ASA regularly, mostly for primary cardiovascular prevention.[1,2] Acetylsalicylic acid is beneficial in patients with known cardiovascular disease.[3,4] When used for primary prevention, ASA might decrease the incidence of myocardial infarctions in men and ischemic strokes in women,[5,6] but it has not been shown to decrease cardiovascular or all-cause mortality.[5,7] Furthermore, the potential cardiovascular benefits are likely offset by the potential risk of adverse events, especially in individuals with lower cardiovascular risk.[6,8,9] Even in patients at higher risk of future cardiovascular events (ie, patients with diabetes or hypertension), the literature does not show a net clinical benefit to using ASA for primary cardiovascular prevention.[10-14]

Although it is assumed that a similar proportion of Canadians, compared with Americans, regularly use ASA, no data on the prevalence of ASA use by Canadians are available in the published literature.

The primary objective of this study was to determine the prevalence of ASA use in patients 50 years of age or older and to determine the proportion of patients using ASA for primary or secondary cardiovascular prevention. Secondary objectives included examining ASA use by age and sex, the proportion of patients who initiated ASA therapy on the advice of a physician, adverse events attributed to ASA therapy, and patient beliefs about the benefits and risks of ASA therapy.

METHODS

This was a cross-sectional, waiting room survey conducted over a 4-week period at 2 family practice clinics (1 rural, 1 urban) in Alberta. The rural family practice clinic was located in Peace River, Alta, a town with 6315 residents 486 km northwest of Edmonton.[15] The urban clinic was an academic family medicine practice located in downtown Edmonton.

Patients 50 years of age and older who attended either family medicine clinic (for any reason) during the study period and who were fluent in English were eligible to take part in the study. The study was conducted from November 23 to December 18, 2009, at the rural site, and from April 19 to May 14, 2010, at the urban site. Eligible patients were invited to take part in the study by the clinic receptionists, and the questionnaire was completed in the clinic waiting room and returned in a sealed envelope. Consent was implied by the return of a completed questionnaire. Patients who had more than 1 visit to the clinic during the study period completed the questionnaire only once. Ethics approval was granted by the Health Research Ethics Board at the University of Alberta.

Questionnaire

The study questionnaire was adapted from previous ASA prevalence questionnaires,[1,2] including the 2003 Behaviour Risk Factor Surveillance System telephone questionnaire used by the Centers for Disease Control and Prevention in the United States.[16] Additional questions added to our questionnaire included the following: whether ASA therapy was initiated by the patient or physician; what adverse events were potentially related to ASA use; what actions were taken as a result of adverse events; and what the patient's beliefs were regarding the potential benefits and risks of using ASA. The questionnaire was assessed for face validity. Patients were considered to have cardiovascular disease if they reported any of the following conditions: heart disease (myocardial infarction, angina, angioplasty, or cardiac stenting), stroke or transient ischemic attack, peripheral vascular disease, atrial fibrillation, valvular heart disease, or congestive heart failure. Patients were considered not to have cardiovascular disease if they did not report any of the aforementioned conditions. *Regular ASA use* was defined as taking ASA at least every other day.[1] The questionnaire was anonymous and contained no personally identifiable information.

Data analysis

Study data were analyzed descriptively using SPSS version 17 for Windows. The calculation of percentages was based on recorded responses. The χ^2 test was used to determine association between ASA use and selected variables. A 2-sided α level of .05 was employed to ascertain statistical significance, and 95% CIs were reported where applicable.

RESULTS

Respondents

A total of 906 eligible patients (480 rural and 426 urban) visited the family medicine clinics during the study period. A total of 807 patients (422 rural and 385 urban) completed the survey, yielding an overall participation rate of 89.1%. Of those patients who indicated their sex, 44.4% (355 of 800) were men (44.0% [183 of 416] of the rural group and 44.8% [172 of 384] of the urban group). Responses revealed that 29.2% (200 of 684) were deemed to have cardiovascular disease (29.2% [101 of 345] of the rural group and 29.5% [99 of 339] of the urban group) (**Table 1**). Overall, the mean age of respondents was 62.6 years (SD 9.9 years), and urban respondents were older than rural respondents (64.5 years vs 60.9 years; $P<.001$).

Table 1. Characteristics of respondents, by rural and urban areas

CHARACTERISTICS	RURAL N = 422, N (%)*	URBAN N = 385, N (%)*	TOTAL N = 807, N (%)*
Sex			
• Male	183 (43.4)	172 (44.7)	355 (44.0)
• Female	233 (55.2)	212 (55.1)	445 (55.1)
• Not recorded	6 (1.4)	1 (0.3)	7 (0.9)
Age group			
• 50-59 y	220 (52.1)	141 (36.6)	361 (44.7)
• 60-69 y	130 (30.8)	118 (30.6)	248 (30.7)
• 70-79 y	53 (12.6)	77 (20.0)	130 (16.1)
• ≥ 80 y	15 (3.6)	43 (11.2)	58 (7.2)
• Not recorded	4 (0.9)	6 (1.6)	10 (1.2)
Have CVD			
• Yes	101 (23.9)	99 (25.7)	200 (24.8)
• No	244 (57.8)	240 (62.3)	484 (60.0)
• Not recorded	77 (18.2)	46 (11.9)	123 (15.2)

CVD—cardiovascular disease.
*Percentages might not add to 100 owing to rounding.

Prevalence of ASA use

Of the 798 respondents who indicated whether or not they took ASA, 318 (39.8%) (95% CI 35.6 to 42.4) used ASA regularly, and 87.0% (274 of 315) of them used it for cardiovascular prevention (**Figure 1**). Of the 274 patients who took ASA for cardiovascular prevention, 53.1% (95% CI 46.8 to 59.4) used ASA for primary prevention and 46.9% (95% CI 40.6 to 53.2) for secondary prevention. Conversely, of the 200 patients who reported having underlying cardiovascular disease, 62.5% took ASA.

Profile of ASA users

A significantly greater proportion of men than women took ASA for cardiovascular prevention (40.8% [145 of 355] vs 28.5% [127 of 445]; $P < .001$). Relatively more men than women took ASA for secondary prevention (50.0% vs 43.6%) than for primary prevention (50.0% vs 56.3%); however, these differences were not statistically significant.

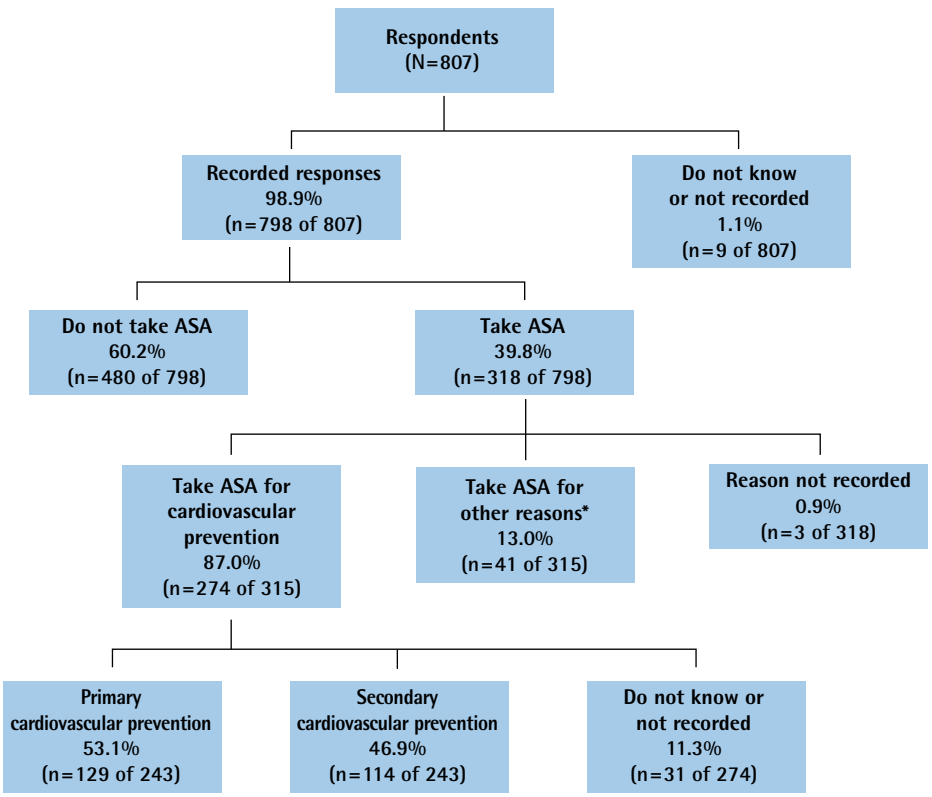
There was a significant association ($P < .001$) between ASA use and age, with those in the 70- to 79-year-old age group (49.2%) being most likely to use ASA for cardiovascular prevention and those in the 50- to 59-year-old age group (24.7%) being least likely to use ASA for cardiovascular prevention. The proportion of patients using ASA for secondary cardiovascular prevention increased with older age, with 41.0%, 46.3%, 50.9%, and 60.9% of those aged 50 to 59 years, 60 to 69 years, 70 to 79 years, and 80 years and older, respectively, using ASA for secondary prevention.

There was no difference between the rural and urban patient groups in the proportion who used ASA for cardiovascular prevention (31.3% rural, 36.9% urban), but significantly more urban patients (60.8% urban vs 44.2% rural; $P = .01$) were taking ASA for primary cardiovascular prevention.

Who initiated ASA use

Overall, 85.0% (233 of 274) of patients started ASA for cardiovascular prevention owing to the advice of health care providers, 67.5% because of advice from their family

Figure 1. Prevalence of ASA use among respondents



ASA—acetylsalicylic acid.
*For example, pain relief, 8.6% (27 of 315).

physicians (**Table 2**). Family physicians were equally likely to prescribe ASA for primary or secondary cardiovascular prevention. A significantly greater proportion of patients who took ASA for primary (26.4%) versus secondary (3.5%) prevention initiated ASA therapy by themselves ($P<.001$). Specialists initiated ASA therapy for a greater proportion of patients who took ASA for secondary (25.4%) versus primary prevention (8.5%) ($P<.001$).

Table 2. Who initiated ASA therapy

INITIATOR	OVERALL CV PREVENTION N = 274, N (%)*	PRIMARY CV PREVENTION N = 129, N (%)	SECONDARY CV PREVENTION N = 114, N (%)
Patient	39 (14.2)	34 (26.4)	4 (3.5)
Family physician	185 (67.5)	80 (62.0)	79 (69.3)
Other specialist	43 (15.7)	11 (8.5)	29 (25.4)
Other health care provider	5 (1.8)	4 (3.1)	2 (1.8)
Do not know or not recorded	2 (0.7)	0 (0.0)	0 (0.0)

ASA—acetylsalicylic acid, CV—cardiovascular.
*Percentages might not add to 100 owing to rounding.

Potential adverse events

Of all those who used ASA for cardiovascular prevention, 6.9% (19 of 274) of patients experienced adverse events potentially related to ASA therapy. Adverse events that were reported included the following (more than 1 adverse event per patient possible): abdominal pain,[6] gastrointestinal bleeding,[3] nosebleeds,[5] renal problems,[1] and other.[10]

Of those patients using ASA for primary prevention, 6.2% (8 of 129) reported adverse events potentially related to ASA therapy, 50.0% of whom (4 of 8) continued taking ASA after the adverse events. Similarly, 7.0% (8 of 114) of patients using ASA for secondary prevention reported adverse events, 62.5% of whom (5 of 8) continued taking ASA.

Patient beliefs

The question about perceived benefits and risks of ASA therapy was answered by 91.1% of all respondents. Overall, 66.9% of patients who took ASA believed that the potential benefits of ASA therapy outweighed the potential risks (**Figure 2**). Of those who did not use ASA, 68.8% of respondents were unsure whether the potential benefits of ASA therapy outweighed the risks. Irrespective of whether respondents were ASA users or not, only 5.0% believed the potential risks of ASA therapy outweighed the potential benefits.

Of patients who used ASA for cardiovascular prevention, 70.9% believed that the potential benefits of ASA therapy outweighed the potential risks. This belief did not differ between patients who were taking ASA for primary prevention and those who were taking it for secondary prevention.

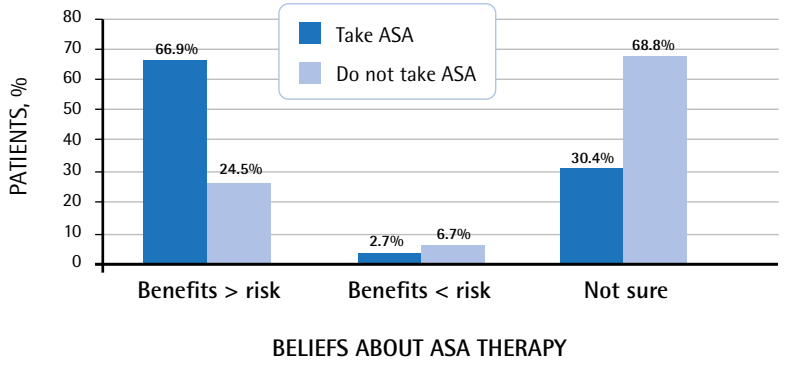
DISCUSSION

This is the first study to examine the prevalence of ASA use among family practice patients in Canada. Similar to previous studies,[1,2] approximately 40% of family practice patients older than 50 years of age in our study used ASA, mainly to prevent future cardiovascular events. Applying the prevalence rate of ASA use observed in this study to the 2009 Canadian population census data,[17] an estimated 4 million Canadians aged 50 years or older might be using ASA for cardiovascular prevention. Given that both patients and physicians tend to overestimate cardiovascular risk,[18,19] many patients of relatively low cardiovascular risk are likely taking ASA for primary cardiovascular prevention.

Primary and secondary prevention

Despite evidence questioning the benefit of ASA in primary cardiovascular prevention,[5,7] more family practice patients used ASA for primary than for secondary cardiovascular prevention. This might be attributed to several reasons. First, after an early North American study demonstrated decreased cardiac events,[20] ASA was widely promoted for primary cardiovascular prevention. Over time, despite new evidence, patients and physicians might be reluctant to discontinue ASA

Figure 2. Patient beliefs about benefits of ASA therapy: *Responses were significantly different for patients who took ASA and those who did not (P<.001).*



ASA—acetylsalicylic acid.

therapy in the absence of adverse events. Second, guidelines still continue to recommend or consider ASA therapy for patients without cardiovascular disease.[8,21-23] Finally, direct-to-consumer advertising might have influenced patients' decisions to continue to use ASA therapy, as shown by the 26.4% of primary prevention patients in our study who started ASA by themselves.

Overall, more men than women in our study took ASA for cardiovascular prevention. This is consistent with current Canadian data that illustrate that cardiovascular disease is more prevalent in men.[24] Analysis of ASA use by age revealed that proportionally more patients were using ASA for secondary prevention with increasing age groups. This is also consistent with the higher prevalence of cardiovascular disease with increasing age.[24]

The finding that more patients in the urban clinic were taking ASA for primary cardiovascular prevention when compared with the rural clinic might reflect differing practice patterns of the physicians or different cardiovascular risk profiles between patients at the 2 sites. The urban clinic had older patients than the rural clinic did; therefore, these patients might be at increased risk of cardiovascular disease, resulting in more of them using ASA.

In our study, 4 out of 8 patients who took ASA for primary prevention continued to use ASA despite experiencing adverse events. This was surprising, given that the potential risks of ASA therapy have been well documented.[25,26] Acetylsalicylic acid is a leading cause of both hospital admissions and deaths from medication-related adverse events,[9,27] and recent evidence questions the benefits of ASA for primary cardiovascular prevention.[5,7] Taken together, this suggests that health care providers should attempt to minimize the use of ASA for primary prevention, especially in those at low cardiovascular risk. Furthermore, family physicians should consider discontinuing ASA in primary prevention patients who experienced adverse events related to ASA therapy. The nature and severity of the adverse event, the indication for use (primary or secondary prevention), and patient wishes might all be factors in the decision about whether to continue ASA therapy.

Family physicians play an important role in advising patients on the use of ASA, as shown by the finding that 62.0% of patients took ASA for primary prevention upon the advice of their family physicians. Patients are also responsible for initiating ASA use, with 26.4% starting ASA by themselves. As such, educating both physicians and patients on the risks and benefits of ASA therapy is necessary. Evidence from the Berger et al[5] and Baigent et al[7] meta-analyses and available brief summaries of the current evidence[28,29] can aid in discussing the risks and benefits of ASA therapy. Acetylsalicylic acid has been shown to be beneficial in preventing recurrent cardiovascular events and death in patients with known cardiovascular disease.[3,4] Only 62.5% of patients with cardiovascular disease in our study were taking ASA regularly. This finding is consistent with other studies that demonstrate suboptimal rates of ASA use for secondary cardiovascular prevention.[1,2,30,31] While it is possible that some patients might have been taking alternative antiplatelet or antithrombotic agents or have had substantial adverse events when taking ASA, it is likely that some patients who might benefit from ASA therapy are not receiving it. Such patients should be identified and advised about the benefit of ASA therapy in secondary cardiovascular prevention.

Our study reveals that patient beliefs regarding the benefits of ASA therapy appear to differ, depending on whether one takes ASA or not. Those who used ASA were more likely to believe that the potential benefits of ASA therapy outweighed the potential risks, while those who did not use ASA were unsure of the benefit-risk ratio of ASA therapy. Irrespective of using ASA or not, very few respondents believed that the potential risks of ASA therapy outweighed the potential benefits. Patient beliefs might be influenced by direct-to-consumer advertising, encounters with health care providers, or previous experiences with ASA. It is unclear whether a patient's belief and knowledge leads to ASA use or if ASA use influences the patient's belief about the benefits of ASA therapy.

Limitations

Our study has several limitations. To be included in the study, patients had to visit their family physicians and, therefore, might have a different risk of developing cardiovascular disease and exhibit a different rate of ASA use than the general population. In addition, patients from the 2 family clinics might not be representative of family medicine clinics in Alberta or Canada. All responses were self-reported and were not validated with pharmacy or medical records; however, previous literature suggests that patients are able to accurately recall their medications[32] and serious cardiovascular conditions.[33] The lack of detailed patient medical data on the questionnaire did not permit us to calculate individual patient cardiovascular risks and determine whether patients at higher cardiovascular risk were more likely to be taking ASA. Furthermore, for those patients with known cardiovascular disease who were not taking ASA, it was not possible to determine whether they were using other antiplatelet agents or other antithrombotic agents or if they had contraindications to ASA therapy.

Conclusion

Many family practice patients take ASA to prevent future cardiovascular events and more patients take ASA for primary prevention than for secondary prevention. Although most patients appear to initiate the use of ASA upon the advice of their family physicians, about one-quarter start taking ASA themselves for primary prevention. Educating both family physicians and patients about the potential benefits and risks of ASA therapy might result in fewer patients using ASA for primary cardiovascular prevention and more patients using ASA for secondary cardiovascular prevention. Patients' beliefs regarding the benefits of ASA therapy appear to differ depending on whether they are ASA users or not, with users believing that the benefits outweigh the risks and nonusers being unsure of the benefits and risks. The paucity of research on ASA use in the primary care setting in Canada highlights the need for a nationwide study to ascertain the use of ASA therapy in the general population.

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Contributors

Dr Kolber conceptualized the study and was involved in the development of the study design and survey questionnaire, ethics application, study implementation, interpretation of study findings, and manuscript preparation. **Dr Sharif** coordinated the study at the urban site, performed data entry, participated in the interpretation of the study findings, and reviewed the manuscript. **Mrs Marceau** coordinated the study at the rural site, performed data entry, and reviewed the manuscript. **Ms Szafran** was involved in the development of the study design, ethics application, data analysis, interpretation of study findings, and manuscript preparation.

Competing interests

None declared

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