Journal of Clinical Gerontology & Geriatrics 7 (2016) 33–36

Contents lists available at ScienceDirect

Journal of Clinical Gerontology & Geriatrics

journal homepage: www.e-jcgg.com

Brief communication

Aspirin prescribing patterns for primary prevention of cardiovascular disease in geriatric patients with diabetes: Survey of prescribers based on experience

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ARTICLE INFO

Article history:
Received 1 December 2015
Received in revised form
25 January 2016
Accepted 1 March 2016
Available online 12 May 2016

Keywords:
aspirin
prescribing patters
primary prevention
survey

ABSTRACT

Evidence and guidelines provide conflicting recommendations regarding the use of aspirin for primary prevention of cardiovascular disease, particularly in geriatric patients with diabetes. The objective of this study is to identify aspirin-prescribing patterns and determine if it is consistent with the 2013 American Diabetes Association and American Geriatrics Association guidelines. A survey was distributed to attending physicians, fellow physicians, and mid-level practitioners in internal medicine, geriatric, cardiology, and endocrinology clinics in Detroit, MI, USA. Most providers (88%) indicated that they would give aspirin for primary prevention of cardiovascular disease. Of those who chose to give aspirin, all chose to prescribe a dose of 81 mg. Most providers elected to prescribe aspirin based on patient age (86%) and comorbidities (98%). Aspirin is routinely prescribed for geriatric patients with diabetes for the primary prevention of cardiovascular disease. The guidelines provide conflicting recommendations; therefore, provider education is needed to guide decision-making in the elderly.
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1. Introduction

For decades, antiplatelet therapy has been the mainstay of therapy for the prevention of cardiovascular disease (CVD). Aspirin is the antiplatelet drug of choice and has well documented benefits in secondary CVD prevention. The use of aspirin for primary prevention remains controversial due to conflicting results from clinical trials and meta-analyses.[1–5] A variety of national organizations provide guidance on utilizing aspirin for primary CVD prevention.[6–13] Historically, these guidelines have provided a favorable recommendation for using aspirin, although more recently there is growing controversy surrounding aspirin for this indication.

There are limited data for primary CVD prevention specifically for geriatric patients with diabetes. In the USA, it is estimated that more than 10 million people older than 65 years have diabetes, which includes almost 27% of all people in the geriatric age group.[14] Geriatric patients with diabetes are at high risk for CVD events such as myocardial infarction and stroke. Treatment with aspirin may provide a protective benefit. However, increasing age also increases the risk for adverse events associated with daily aspirin therapy, such as bleeding. There is a fine balance between the risks and benefits of aspirin for primary CVD prevention in geriatric patients with diabetes. Both the American Diabetes Association (ADA) and the American Geriatrics Association (AGS) have published guidelines on the care of patients with diabetes that include recommendations on the use of aspirin.[6,7] The ADA guidelines recommend aspirin for primary prevention if the patient's 10-year CVD risk score is $\geq$ 10%.[6] The AGS states that aspirin for primary CVD prevention is not recommended for patients $\geq$ 65 years with diabetes.[7]

As a result of different guideline recommendations, providers caring for geriatric patients with diabetes may have differing prescribing patterns. Our hypothesis was that these recommendations might produce greater uncertainty in trainees than established practitioners. Thus, the purposes of this study were: (1) to identify

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http://dx.doi.org/10.1016/j.jcgg.2016.03.006
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preferences in prescribing of aspirin for primary CVD prevention in geriatric patients with diabetes according to practitioner experience; and (2) to determine how current prescribing patterns compare with the ADA and AGS guidelines.

2. Methods

The study was approved by the Investigational Review Board at Wayne State University, Detroit, MI, USA and was conducted at various outpatient clinics and inpatient sites within the Detroit Medical Center (DMC; Detroit, MI, USA). Our experienced practitioner group consisted of attending physicians and midlevel providers (nurse practitioners) at the DMC. The trainee group consisted of residents and fellows enrolled in United States-accredited graduate medical education training programs at the DMC.

We created a survey to assess provider preferences on prescribing aspirin for primary CVD prevention in elderly patients with diabetes. Surveys were distributed to providers at staff meetings and small group educational meetings. The following specialties were surveyed: cardiology, endocrinology, geriatrics, and internal medicine. At the beginning of the study, surveys were distributed to attending physicians, fellows and residents, and mid-level practitioners. Surveys were also distributed to internal medicine resident physicians at the end of their rotations.

The following case was given to providers taking the survey. A 68-year-old white woman (MB) is in your office for follow-up of her chronic medical conditions. She has hypertension, hyperlipidemia, and type 2 diabetes mellitus. She has a family history of hypertension (mother and father) and type 2 diabetes mellitus (father). The patient is independent at home and her physical activity is walking her dog. She denies the use of tobacco, alcohol, and illicit drugs. Currently she is taking guideline recommended medications to manage her comorbidities. Her blood pressure, lipids, and diabetes are at goal.

The survey was estimated to take 5–10 minutes. There were a total of 15 questions in a combination of multiple-choice and free-text formats. The survey consisted of two components: (1) five questions pertaining to demographics of the providers and (2) a patient case with 10 clinical questions related to the case. These questions allowed three possible answers; *yes*, *no*, or *uncertain*.

Analysis was performed using nonparametric testing of the following: aspirin prescribing patterns between physicians and mid-level practitioners versus trainees. Chi-square analyses or Fisher exact tests (cell-size dependent) were used to compare categorical variables. For presentation of the results, we combined the *no* and *uncertain* answers, thus 2×2 contingency tables were analyzed.

3. Results

There was 100% response rate with a total of 48 providers who completed the survey. Attending physicians (29.2%) practiced in internal medicine (4.2%), geriatrics (12.5%), cardiology (8.3%), and endocrinology (4.2%). Trainee specialties were all internal medicine residents (58.3%) on rotation for one of the above specialties, or geriatrics fellows (8.3%). Midlevel practitioners were nurse practitioners in geriatrics (4.2%). Responses to all questions were not mandatory, thus response rates to survey questions differed (Table 1).

Most providers (42 of 48; 88%) indicated that they would prescribe aspirin for primary CVD prevention in a geriatric patient with diabetes (Table 2). However, only trainees indicated that they would not give aspirin or were uncertain. Of the respondents who chose to give aspirin, all indicated that a dose of 81 mg was preferred. The providers were asked to indicate reasons to give or not give aspirin. Most of them selected age (86%) and comorbidities (98%) as the rationale behind their decision. Others chose sex, race, family, bleeding history, and lifestyle as their reasoning. A majority of respondents indicated they would prescribe aspirin if the patient met any of the following criteria: elevated blood pressure (98%), elevated LDL (92%), elevated A1C (100%), smoking (98%), or male sex (100%). There were no differences in experience-related aspirin treatment recommendations for these criteria.

Responses varied between providers if there was a history of gastrointestinal ulceration and bleeding (overall, 50% *yes*), and if the patient's age increased over 68 years old (overall, 77% *yes* if age 75 years and 48% *yes* if age 85 years). Furthermore, in the case of prior gastrointestinal bleeding, there was evidence that prescribing patterns differed: more trainees recommended aspirin ($p = 0.01$). Although there was no evidence from the 2×2 contingency table analysis for a difference in the experience-related prescribing pattern based on patient age (Table 2), there was weak evidence within both groups that aspirin recommendations decreased as age increased from 75 years to 85 years; experienced providers $p = 0.08$; trainees $p = 0.06$.

4. Discussion

We identified through a self-reported survey that most providers would give aspirin for primary CVD prevention. There is

Table 1
Response rates for survey questions.

Question or item	Respondents Total $n = 48$, n (%)
Which of the following most accurately describes your current level of practice?	48 (100.0)
Which of the following most accurately describes your area of specialty?	48 (100.0)
If you are a resident physician, which service are you currently covering?	28 (58.3)
Would you recommend MB take aspirin for primary prevention of cardiovascular disease?	48 (100.0)
If you recommend MB take aspirin for primary prevention of cardiovascular disease, which dose do you recommend?	43 (89.6)
Please indicate the reason(s) for your choice. You may list as many reasons as you wish.	43 (89.6)
Your recommendation, everything being the same as original case, except:	48 (100.0)
- MB's blood pressure is 156/80 mmHg	
- MB's fasting lipid panel is TC, 178 mg/dL; TG, 78 mg/dL; HDL, 42 mg/dL; LDL, 120 mg/dL	
- MB's A1C is 8%	
- MB has a history of GI ulceration with bleeding 5 years ago	
- MB is a smoker	
- MB is older with an age of 75 years	
- MB is older with an age of 85 years	
- MB is male instead of female	
Comments	2 (0.04)

GI = gastrointestinal; HDL = high-density lipoprotein; LDL = low-density lipoprotein; TC = total cholesterol; TG = triglycerides.

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