



Original Article

Management of Acute Coronary Syndromes Beyond the First Year: A Canadian Clinical Practice Survey

Khai-Tuan A. Bui,^{a,b} Alexis Matteau, MD, SM,^{a,b} Basem Elbarouni, MD,^c Kevin R. Bainey, MD,^d Christopher B. Fordyce, MD,^e Akshay Bagai, MD,^f Barry Rose, MD,^g Sohrab Lutchmedial, MD,^h Benjamin Leis, MD,ⁱ Andrea Lavoie, MD,^j Jafna Cox, MD,^k Samer Mansour, MD,^{a,b} and Brian J. Potter, MDCM, SM^{a,b}

^a Cardiology Service, Department of Medicine, University of Montreal Hospital Centre (CHUM), Montreal, Quebec, Canada; ^b Health Innovation and Evaluation Hub, Research Center of the CHUM (CRCHUM), Montreal, Quebec, Canada; ^c Cardiology Division, Department of Medicine, St-Boniface Hospital, Winnipeg, Manitoba, Canada; ^d Cardiology Division, Department of Medicine, Mazankowski Alberta Heart Institute, University of Alberta, Edmonton, Alberta, Canada; ^e University of British Columbia, Vancouver, British Columbia, Canada; ^f Cardiology Division, Department of Medicine, Terrence Donnelly Heart Center, St Michael's Hospital, Toronto, Ontario, Canada; ^g Cardiology Division, Department of Medicine, Eastern Health/Memorial University, St John's, Newfoundland and Labrador, Canada; ^h Cardiology Division, Department of Medicine, New Brunswick Heart Centre, Saint John, New Brunswick, Canada; ⁱ Cardiology Division, Department of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada; ^j Cardiology Division, Department of Medicine, University of Saskatchewan, Regina, Saskatchewan, Canada; ^k Cardiology Division, Department of Medicine, Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia, Canada

ABSTRACT

Background: Antithrombotic management following acute coronary syndromes (ACSs) has evolved significantly. However, given lingering uncertainty as to when an ACS may be considered stable, there is the possibility of practice divergence beyond the first year.

Methods: An online adaptive survey describing patients with varying cardiac and extracardiac ischemic risk was developed in order to assess self-reported physician practice intentions pertaining to the antithrombotic management of ACS patients who lack a formal indication for therapeutic anticoagulation. Provincial “champions” (Prince Edward Island not represented) were identified to ensure dissemination of the survey within their jurisdictions via 3 coordinated e-mailings; the survey was made available in French and English from November 2018 through January 2019.

RÉSUMÉ

Contexte : La prise en charge antithrombotique des patients ayant subi un syndrome coronarien aigu (SCA) a sensiblement évolué au fil du temps. Toutefois, compte tenu de l'incertitude qui persiste quant aux critères définissant un SCA stable, il est possible que les pratiques divergent après la première année.

Méthodologie : Nous avons mis au point un questionnaire adaptatif en ligne décrivant les cas de patients présentant divers degrés de risque d'ischémie cardiaque ou extracardiaque, afin d'évaluer les objectifs autodéclarés des médecins quant à la prise en charge antithrombotique des patients ayant subi un SCA chez qui une anticoagulation n'est pas formellement indiquée. Des « champions » provinciaux (l'Île-du-Prince-Édouard n'étant pas représentée) ont été désignés pour assurer la diffusion du questionnaire dans leur province respective en

The long-term antithrombotic management of acute coronary syndrome (ACS) patients has evolved significantly of late, as evidenced by the ever-expanding literature around this topic. Although there seems to be strong support for a 12-

month duration of dual antiplatelet therapy (DAPT) for ST-segment-elevation myocardial infarction (STEMI) and non-ST segment elevation ACS (NSTEACS) in the majority of patients,^{1,2} some studies have suggested that the duration of DAPT may be appropriately shortened or prolonged depending on individual bleeding and ischemic risk profiles.³⁻⁵

Recently, “dual pathway” inhibition (DPI), consisting of the concomitant use of a single antiplatelet agent (aspirin) alongside an anticoagulant agent (low-dose rivaroxaban), was evaluated in the Cardiovascular Outcomes for People Using Anticoagulation Strategies (COMPASS) trial, showing that patients with stable atherosclerotic vascular disease and high-clinical risk features who were on DPI therapy had a significant reduction in ischemic events and all-cause

Received for publication June 21, 2020. Accepted August 5, 2020.

Ethics Statement: This survey was conducted in accordance with the Good Clinical Practice (GCP) guidelines.

Corresponding author: Dr Brian J. Potter, Carrefour de l'innovation et évaluation en santé (CIÉS), Centre de recherche du CHUM (CRCHUM), Cardiology & Interventional Cardiology, CHUM, Pavillon S, S03-334, 850, rue St-Denis, Montréal, Québec, H2X 0A9, Canada. Tel.: 514-890-8000 ext. 15473; fax: 514-412-7212.

E-mail: brian.potter@umontreal.ca

See page 624 for disclosure information.

Results: A total of 135 practitioners responded to the survey (response rate 15%). Surveys were fully completed in all cases. Nearly all respondents (97%) were cardiologists; 76% worked at an academic center, and 54% had been in practice ≥ 10 years. Most respondents (81%-90%, depending on the scenario) preferred ticagrelor-based dual antiplatelet therapy as the initial ACS treatment. However, beyond 12 months, management decisions differed significantly according to the balance of cardiac and extracardiac risk.

Conclusions: This study provides a first look at how the introduction of rivaroxaban 2.5 mg might be integrated into the clinical management of ACS patients beyond the first year in Canada. Whether to pursue dual antiplatelet therapy or transition early to low-dose rivaroxaban plus acetylsalicylic acid will likely be driven by patient clinical characteristics and perceived cardiac vs extra-cardiac ischemic risk.

mortality compared to those taking aspirin alone.⁶ However, despite the recent approval of use of low-dose rivaroxaban, uncertainty remains about its implementation in clinical practice,² particularly with regard to when an ACS patient may be considered a stable ischemic heart disease (SIHD) patient. Given this uncertainty, there is the potential for significant variability in clinical practice in the long-term care of ACS patients.

As the clinical use of low-dose rivaroxaban is currently very limited, the aim of this study was to assess Canadian physicians' self-reported practice intentions regarding the antithrombotic management of ACS patients for whom there is not a formal indication for therapeutic anticoagulation beyond the first year, to determine the potential for practice divergence and the educational needs of the physician community.

Methods

We conducted a national survey of Canadian medical practitioners responsible for the ongoing management of ACS patients. The survey was made available to clinicians by e-mail from November 2018 to January 2019. Up to 3 synchronized mailings were conducted in each provincial territory, with the exception of Prince Edward Island, and were coordinated by provincial "champions" who identified potential study participants in their territory. Participation was voluntary and without compensation. As the survey dealt with hypothetical clinical scenarios, research ethics board approval was not sought.

Survey development

We developed English and French versions of an online adaptive survey consisting of clinical vignettes (Table 1), multiple-choice questions, as well as responses on a Likert-type scale using *Google Forms*. A complete transcript of the survey is available in [Supplemental Appendix S1](#).

The survey collected demographic information on the respondents, self-declared immediate and long-term antithrombotic prescription intentions in response to 3

trois envois par courriel coordonnés; le questionnaire était offert en français et en anglais, et l'enquête s'est déroulée de novembre 2018 à janvier 2019.

Résultats : Au total, 135 praticiens ont répondu au sondage (taux de réponse : 15 %). Tous les participants ont répondu à toutes les questions. Presque tous les participants (97 %) étaient cardiologues; 76 % des participants travaillaient dans un centre universitaire, et 54 % exerçaient depuis 10 ans ou plus. La plupart des participants (de 81 à 90 %, selon le scénario) préféraient une bithérapie antiplaquettaire à base de ticagrelor comme premier traitement après un SCA. Toutefois, les décisions quant au traitement au-delà des 12 premiers mois suivant le SCA variaient considérablement selon le risque cardiaque et extracardiaque résiduel évalué.

Conclusions : L'étude constitue une première évaluation de la façon dont le rivaroxaban à 2,5 mg pourrait être intégré à la stratégie canadienne de prise en charge des patients au-delà de la première année suivant le SCA. Le choix de poursuivre la bithérapie antiplaquettaire ou de faire promptement la transition vers un traitement associant rivaroxaban à faible dose et acide acétylsalicylique dépendra vraisemblablement des caractéristiques cliniques du patient et du risque d'ischémie cardiaque et extracardiaque perçue.

clinical vignettes, and the impact of additional clinical factors on the likelihood of long-term prescription of different antithrombotic agents.

The 3 clinical vignettes were designed by the study investigators in order to present ACS patients with distinct combinations of cardiac and extracardiac ischemic risk. The first vignette (1) describes a 66-year-old male, without any relevant medical history, who presented with an anterior STEMI and underwent successful and timely primary percutaneous coronary intervention (PCI) of the proximal left anterior descending artery with a drug-eluting stent (DES). The second vignette (2) describes a 55-year-old female diabetic smoker without any other relevant medical history who presented with a non-ST-elevation myocardial infarction (NSTEMI) and underwent successful multivessel DES PCI. The third vignette (first version; 3a) describes a 70-year-old male former smoker with hypertension and a history of stroke and claudication who presented with an NSTEMI and underwent successful single-vessel DES PCI of the right coronary artery.

For each vignette, respondents needed to answer 2 multiple-choice questions to assess (i) the preferred antithrombotic treatment during the first year following the ACS and (ii) the same as (i) for beyond the first year, with the choice being made at a 12-month follow-up visit. An alternate version of the last vignette (3b) was also included, wherein the patient instead presented at 18 months post-ACS, having already stopped their P2Y12 (clopidogrel, prasugrel, or ticagrelor) antagonist at 12 months. The patients were assumed to have no contraindications to any antithrombotic agent and tolerated the chosen treatment during the first year. Different DAPT regimens consisting of aspirin in combination with a P2Y12 antagonist were possible choices in the first 12 months. Thereafter, respondents could choose between antiplatelet monotherapy, continued DAPT, or transitioning to DPI with aspirin and low-dose rivaroxaban (2.5 mg twice a day).

Lastly, the Likert-type questions assessed the influence of individual clinical risk factors on preferred antithrombotic

Table 1. Summary of clinical vignettes presented in the survey

Vignette	Description
1	<ul style="list-style-type: none"> • 66-year-old male without PMHx • Presents with anterior STEMI • Successful primary PCI of LAD artery with DES • Does well without any bleeding events at 1 year
2	<ul style="list-style-type: none"> • 55-year-old female diabetic smoker • Presents with NSTEMI • Successful multivessel PCI with DES • Does well without any bleeding events at 1 year
3a	<ul style="list-style-type: none"> • 70-year-old male former smoker with hypertension, stroke history, and claudication • Presents with NSTEMI • Successful PCI of RCA with DES • Does well without any bleeding events at 1 year
3b	<ul style="list-style-type: none"> • Same as 3a, but P2Y12-inhibitor antiplatelet agent was stopped at 12 months (ASA monotherapy) • Doing well without any bleeding events at 18-month follow-up
Question i	What would be your preferred P2Y12 antagonist during the first year?
ii	What is your antithrombotic management at follow-up?

ASA, acetylsalicylic acid; DES, drug-eluting stent; LAD, left anterior descending; NSTEMI, non-ST-elevation myocardial infarction; PCI, percutaneous coronary intervention; PMHx, personal medical history; RCA, right coronary artery; STEMI, ST-elevation myocardial infarction.

therapy beyond the first year. Response options for each clinical factor were *ASA [acetylsalicylic acid] monotherapy, DAPT, dual pathway, or no effect*. Evaluated risk factors included the following: age > 75 years, female sex, active tobacco use, history of alcohol abuse, hypertension, diabetes, renal disease, liver disease, STEMI presentation, NSTEMI presentation, unstable angina presentation, stroke history, claudication/peripheral artery disease, and malignancy.

Statistical analyses

Descriptive statistics are presented as counts and percentage of total. Comparisons between groups were performed using the χ^2 test (SAS version 9.4, SAS Institute Inc., Cary, NC).

Results

A total of 135 practitioners responded to the survey. The national response rate was 15%, with some variation from region to region, but overall, 47% of responses came from western provinces and 53% from eastern provinces (Supplemental Table S1). Survey data were complete in all cases. Respondent demographic data are presented in Table 2. Nearly all respondents (97%) were licenced cardiologists. Three trainees (2%) and one internist (1%) also responded to the survey. Three quarters (76%) of respondents worked at an academic center, whereas 17% worked at a community hospital, and 7% worked primarily in an office setting. Most respondents had been in practice for ≥ 10 years (54%), but 18% had practiced for 6-10 years, and 28% had been in practice for < 5 years.

For all 3 vignettes, most participants (90%, 90%, and 81%, respectively) preferred ticagrelor-based dual antiplatelet therapy (DAPT) as the initial ACS treatment. Subsequently, among patients who have done well without bleeding or ischemic events, management decisions differed significantly

Table 2. Demographic characteristics of respondents

Question	Choice	n (%)
Which best describes your clinical specialty?*	Cardiologist	131 (97)
	Primary care or internal medicine specialist	1 (1)
	Medical or surgical trainee	3 (2)
How many years have you been practicing?†	≤ 5	38 (28)
	6-10	24 (18)
	11-15	20 (15)
	16-20	11 (8)
	> 20	42 (31)
In which province or territory do you primarily work?†	British Columbia	13 (10)
	Alberta	20 (15)
	Prairies (SK, MB)	25 (19)
	Ontario	12 (9)
	Quebec	54 (40)
Which of the following best describes your primary practice environment?†	Atlantic (NB, NS, NL)	11 (8)
	Medical office	10 (7)
	Community hospital	23 (17)
	Academic hospital	102 (76)
	Research laboratory or institute	0

MB, Manitoba; NB, New Brunswick; NL, Newfoundland and Labrador; NS, Nova Scotia; SK, Saskatchewan.

* Other choices for clinical specialty were also available, but they did not represent those who answered the survey.

† All provinces and territories were options in the survey. However, certain provinces have been grouped to enhance regional comparisons, and provinces and territories without respondents were omitted.

according to the clinical scenario (Fig. 1, A-D; $P < 0.001$). For Vignette 1, 52% of participants chose to downgrade to ASA monotherapy only, with another 43% opting to pursue DAPT. Among those choosing to pursue DAPT, 64% continued the same P2Y12 antagonist, and the remaining 36% switched to clopidogrel-DAPT from another P2Y12 after 1 year. For Vignette 2, a majority (66%) preferred to pursue DAPT (72% pursued the same DAPT; 28% switched to clopidogrel), whereas 24% of participants opted for aspirin monotherapy. Given this, only a minority of practitioners stated that “dual pathway” therapy would be preferred in Vignettes 1 and 2 (5% and 10%, respectively). In contrast, there was stronger support for transitioning to rivaroxaban (2.5 mg twice a day) with ASA in Vignettes 3a and 3b (41% and 47%, respectively). Pursuing DAPT was less likely if the patient had already stopped DAPT prior to the clinical visit (12% vs 33% in Vignettes 3b and 3a, respectively; $P < 0.001$). Detailed responses to the survey are further summarized in Supplemental Tables 2-8.

Interregional variability in antithrombotic practice intention beyond the first year was most striking for Vignette 1 ($P < 0.001$), with more consistent results across regions for Vignettes 2 and 3a (P not significant). Although responses appeared to be more varied across regions for Vignette 3b, these differences did not achieve statistical significance.

When asked about specific clinical risk factors (Table 3), continuing DAPT was preferred after the first year in the setting of active tobacco use (43%), diabetes (58%), and myocardial infarction (59% if STEMI; 53% if NSTEMI). Rivaroxaban plus aspirin therapy was favored if patients had a history of clinical claudication or peripheral artery disease (49%). ASA monotherapy was preferred over other therapeutic choices with older age (68%), a history of alcohol use (79%), renal disease (45%), liver disease (74%), malignancy

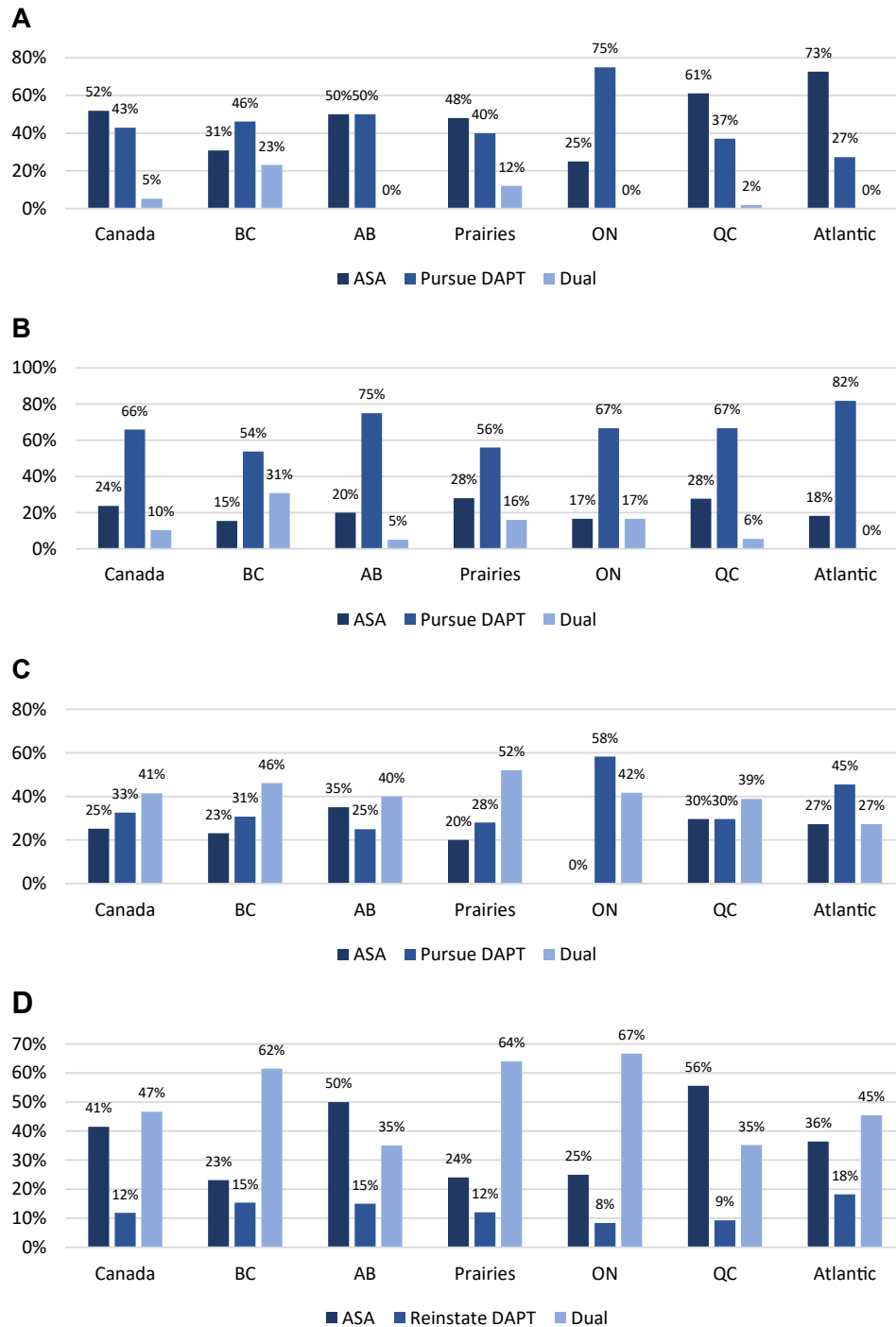


Figure 1. Antithrombotic management beyond the first year following an acute coronary syndrome, by region. (A) Vignette 1. (B) Vignette 2. (C) Vignette 3a (follow-up at 12 months). (D) Vignette 3b (follow-up at 18 months). AB, Alberta; ASA, acetylsalicylic acid; BC, British Columbia; DAPT, dual antiplatelet therapy; ON, Ontario; QC, Quebec.

(79%), and unstable angina presentation (47%). A history of stroke was equally likely to result in ASA monotherapy (34%), DAPT (33%), or “dual pathway” (ASA and rivaroxaban) therapy (28%) after the first year. There was a slight indication of female sex predicting ASA monotherapy (41%), but 33% of respondents felt it had no effect in their decision-making.

Discussion

In this sample of Canadian cardiology practitioners, antithrombotic therapy beyond the first year following an ACS presentation appears to be influenced by perceptions of cardiac and extracardiac ischemic risk. We were also able to determine that active tobacco use and diabetes predicted prolonged DAPT despite being among the inclusion criteria

Table 3. Impact of clinical factors on preferred antithrombotic therapy after the first year following myocardial infarction

Clinical factor	Preferred type of therapy			
	ASA only	DAPT	Rivaroxaban + ASA	No effect
Age > 75 y	92 (68)	26 (19)	7 (5)	10 (7)
Female sex	55 (41)	29 (21)	6 (4)	45 (33)
Active tobacco use	43 (32)	58 (43)	13 (10)	21 (16)
History of alcohol abuse	106 (79)	13 (10)	1 (1)	15 (11)
Hypertension	57 (42)	37 (27)	9 (7)	32 (24)
Diabetes	23 (17)	78 (58)	28 (21)	6 (4)
Renal disease	61 (45)	47 (35)	16 (12)	11 (8)
Liver disease	100 (74)	18 (13)	2 (1)	15 (11)
STEMI presentation	36 (27)	80 (59)	7 (5)	12 (9)
NSTEMI presentation	39 (29)	72 (53)	10 (7)	14 (10)
Unstable angina presentation	64 (47)	48 (36)	10 (7)	13 (10)
Stroke history	46 (34)	45 (33)	38 (28)	6 (4)
Claudication/peripheral artery disease	21 (16)	44 (33)	66 (49)	4 (3)
Malignancy	106 (79)	12 (9)	6 (4)	11 (8)

Values are n (%).

ASA, acetylsalicylic acid; DAPT, dual antiplatelet therapy; NSTEMI, non-ST-elevation myocardial infarction; STEMI, ST-segment-elevation myocardial infarction.

for the COMPASS trial,⁶ whereas peripheral arterial disease (but not stroke) predicted a transition to “dual pathway” therapy. This report is timely given the recent clinical availability of rivaroxaban 2.5 mg in Canada and may help orient educational initiatives in an increasingly complex therapeutic area.

The COMPASS trial enrolled stable vascular patients (mean 7 years post coronary event) with high-risk clinical features, including atherosclerosis in multiple vascular beds, complex coronary anatomy, diabetes, and active tobacco use, and demonstrated a significant reduction in the composite of cardiovascular (CV) death, myocardial infarction or stroke, as well as a reduction in all-cause mortality and CV mortality, with low-dose rivaroxaban and aspirin compared to aspirin alone.⁶ An impressive reduction in ischemic stroke and major adverse limb events was also shown.⁶

With regard to DAPT, multiple trials have used varying definitions of SIHD. The Prevention of Cardiovascular Events in Patients with Prior Heart Attack Using Ticagrelor Compared to Placebo on a Background of Aspirin (PEGASUS) and Dual Anti-Platelet Therapy (DAPT) trials demonstrated that prolonged DAPT may be preferred in certain high-risk coronary patients following an ACS.^{3,4} The PEGASUS trial, in contrast to the COMPASS trial, had a median time of 1.7 years from an index coronary event (100% myocardial infarction) to study enrolment and showed that benefits were greater with shorter DAPT interruption. More recently, although it was published after this survey was conducted, the Effect of Ticagrelor on Health Outcomes in Diabetes Mellitus Patients Intervention Study (THEMIS) trial showed that stable diabetic patients, particularly those with a history of PCI, could also benefit from ticagrelor-based DAPT.^{7,8} A reduction in CV death, MI, or stroke was demonstrated, but there was no difference in mortality alone, and the bleeding risk appeared to be excessive (although it was lower in those with prior PCI).^{7,8} Alternatively, the Ticagrelor With Aspirin or Alone in High-Risk Patients After Coronary Intervention (TWILIGHT) study showed that high ischemic risk patients with increased bleeding risk may appropriately and safely be transitioned to ticagrelor monotherapy after 3 months of DAPT.⁵ Variable inclusion criteria, however,

contribute to the increasing confusion among practitioners as to when an ACS patient may be considered stable (ie, SIHD) and therefore eligible for DPI. With this in mind, it is important to note that the patients described in both Vignettes 2 and 3 would have met the inclusion criteria for the COMPASS trial, but strikingly different choices of antithrombotic treatment were made for them, compared with those for our respondents. Moreover, the differences in responses to Vignettes 3a and 3b suggest that a patient’s baseline therapy may also influence the choice of antithrombotic therapy going forward. Interestingly, Vignette 3b resulted in a significant shift in the rate of dual or single antiplatelet therapy intention, without much impact on the rate of dual pathway prescription intention. This suggests that there may be a subgroup of early adopters of DPI, with the balance of respondents choosing between DAPT and single antiplatelet therapy.

Finally, our study highlights a degree of response heterogeneity across the country regarding the choice of antithrombotic regimen. This information is highly relevant to appropriately tailoring educational initiatives to the needs of practitioners in different regions. This variability could be alleviated with a practice update using the current Canadian Cardiovascular Society antiplatelet guidelines.

Clinical practice surveys have certain inherent limitations, particularly with regard to uncertainty related to the representativeness of the sample and the stability of responses over time. With respect to the first point, potential respondents were identified by regional champions through local e-mailing lists typically used for communication with the cardiology community, and the response rate was generally good. However, it remains possible that a nonrandom sample responded to the questionnaire, with possible overrepresentation of academic practitioners. With respect to the second point, the survey was conducted prior to the publication of more-recent antiplatelet trials, which may impact clinical decision-making,^{5,7,8} in addition to ongoing educational initiatives on the part of medical societies and industry and variations in terms of the clinical availability of specific agents over time. Moreover, although provincial reimbursement guidelines were not yet established at the time

of the survey, we cannot rule out the possibility that some respondents were influenced by predictions regarding likely reimbursement parameters in their province. Additionally, caution should be exercised when interpreting interregional differences in practice intention, particularly for regions with lower absolute numbers of responses. Also, since this survey was conducted, ongoing educational initiatives, combined with a clearer picture of provincial reimbursement criteria, may have led to more uniform practice intentions across the country. The impact of the recent nonavailability of prasugrel, on the other hand, is likely to be minor, given the low rate of prasugrel prescription in the first year post-ACS. Finally, the survey attempted to indirectly assess when clinicians consider an ACS patient a stable (chronic) coronary patient, focusing on clinical decision-making in the first 18 months post-ACS, which is typically when antithrombotic decisions must be made. It is possible, however, that this transition occurs well beyond 1 year for some clinicians. We elected to not study this possibility, in the interest of keeping the survey as brief as possible to maximize response rate. To this point, all survey responses received were complete and unambiguous. Similarly, we elected not to directly assess the impact of varying bleeding risk in the clinical vignettes. Future surveys should address the interplay between ischemic and bleeding risk on treatment decisions in this population.

This study provides a first look at how the introduction of low-dose rivaroxaban might be integrated into the clinical management of ACS patients beyond the first year in Canada. Ticagrelor-DAPT is the preferred treatment in the first year for the majority of clinicians, irrespective of the clinical risk profile presented. But whether to pursue monotherapy or DAPT, or transition early to DPI with low-dose rivaroxaban plus ASA beyond the first year will likely be driven by patient clinical characteristics and the perceived balance of residual cardiac vs extracardiac ischemic risks. As the complexity of choice of antithrombotic management of ACS patients increases, ongoing observation of clinical practice patterns is vital to determining the educational needs of the community and optimizing patient care.

Funding Sources

This survey was not funded. Dr Brian J. Potter is supported by a *Fonds de recherche du Québec-Santé* career

award (267436). The authors have no other funding sources to declare.

Disclosures

Dr Akshay Bagai received speaking honoraria from AstraZeneca, Bayer, BMS/Pfizer, and Servier. Dr Samer Mansour received honoraria from Bayer and AstraZeneca. Dr Brian J. Potter received honoraria from Bayer and AstraZeneca. The other authors have no conflicts of interest to disclose.

References

1. Ibanez B, James S, Agewall S, et al. 2017 ESC guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: the Task Force for the Management of Acute Myocardial Infarction in Patients Presenting with ST-Segment Elevation of the European Society of Cardiology (ESC). *Eur Heart J* 2018;39:119-77.
2. Mehta SR, Bainey KR, Cantor WJ, et al. 2018 Canadian Cardiovascular Society/Canadian Association of Interventional Cardiology focused update of the guidelines for the use of antiplatelet therapy. *Can J Cardiol* 2018;34:214-33.
3. Bonaca MP, Bhatt DL, Cohen M, et al. Long-term use of ticagrelor in patients with prior myocardial infarction. *N Engl J Med* 2015;372:1791-800.
4. Mauri L, Kereiakes DJ, Yeh RW, et al. Twelve or 30 months of dual antiplatelet therapy after drug-eluting stents. *N Engl J Med* 2014;371:2155-66.
5. Mehran R, Baber U, Sharma SK, et al. Ticagrelor with or without aspirin in high-risk patients after PCI. *N Engl J Med* 2019;381:2032-42.
6. Eikelboom JW, Connolly SJ, Bosch J, et al. Rivaroxaban with or without aspirin in stable cardiovascular disease. *N Engl J Med* 2017;377:1319-30.
7. Steg PG, Bhatt DL, Simon T, et al. Ticagrelor in patients with stable coronary disease and diabetes. *N Engl J Med* 2019;381:1309-20.
8. Bhatt DL, Steg PG, Mehta SR, et al. Ticagrelor in patients with diabetes and stable coronary artery disease with a history of previous percutaneous coronary intervention (THEMIS-PCI): a phase 3, placebo-controlled, randomised trial. *Lancet* 2019;394:1169-80.

Supplementary Material

To access the supplementary material accompanying this article, visit *CJC Open* at <https://www.cjcopen.ca/> and at <https://doi.org/10.1016/j.cjco.2020.08.002>.