

A survey of physician perception and practices regarding pharmacological thromboprophylaxis during chemotherapy for bladder cancer

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Cite as: Amenyogbe A, Lemire F, Yachnin D, et al. A survey of physician perception and practices regarding pharmacological thromboprophylaxis during chemotherapy for bladder cancer. *Can Urol Assoc J* 2022 May 20; Epub ahead of print. <http://dx.doi.org/10.5489/cuaj.7865>

Published online May 20, 2022

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Abstract

Introduction: Patients with advanced bladder cancer receiving chemotherapy have a high risk of venous thromboembolism (VTE); however, we hypothesized these patients are not routinely offered thromboprophylaxis. The objective of this study was to characterize practice patterns and perceptions of Canadian urologic and medical oncologists, and to identify research needs regarding thromboprophylaxis for patients with bladder cancer.

Methods: An online survey was distributed to Canadian urologic and medical oncologists who manage advanced bladder cancer. The survey explored physician opinions regarding VTE rates,

Key Messages

- Physician in Canada believe that patients with advanced bladder cancer have a high risk of venous thromboembolism.
- There is evidence to support thromboprophylaxis in patients receiving chemotherapy, but data may not be generalizable to patients with bladder cancer as few of them were included in prior trials.
- Physicians in Canada do not routinely offer thromboprophylaxis to patients with bladder cancer receiving chemotherapy.
- Medical and urological oncologist in Canada have a strong interest to participate in clinical trials examining thromboprophylaxis in bladder cancer patients.

risk stratification scores, thromboprophylaxis use in different treatment settings, and interest in clinical trials.

Results: Seventy physicians were invited and 36 (51%) completed the survey, including 20 (56%) urologic oncologists and 16 (44%) medical oncologists. Most respondents (35; 97%) believed that exposure to platinum chemotherapy increases VTE risk. For patients receiving neoadjuvant chemotherapy, 34 (94%) respondents estimated the risk of VTE to be 10% or higher, yet 25 (69%) indicated they do not routinely recommend thromboprophylaxis. Physicians frequently (10; 40%) defer the decision to another physician, while eight (32%) believe there is not enough evidence to guide best management. Similar responses were obtained for metastatic patients. Almost all (94%) respondents were interested in participating in a thromboprophylaxis trial for patients with bladder cancer.

Conclusions: Patients with bladder cancer receiving chemotherapy in Canada are not routinely offered thromboprophylaxis. We found strong interest among Canadian oncologists to participate in clinical trials examining this topic.

Introduction

Over 12,000 patients are diagnosed with bladder cancer in Canada each year.¹ Patients with cancer are at 9 times higher risk of venous thromboembolism (VTE) than the general population (2.3% compared to 0.4%) and VTEs are the leading cause of non-cancer related death in patients who receive cancer surgery.^{2,3} A population-based study reported that for patients with cancer, exposure to chemotherapy significantly increases the risk of VTE over a 12-month period, compared to no exposure to chemotherapy (hazard ratio [HR] 3.4).³ Several stratification tools exist to estimate the risk of VTE for patients with cancer receiving chemotherapy, the most common being the Khorana score.⁴ Patients with bladder cancer are at higher risk of VTE than other cancer patients.⁴⁻⁶ This may be due to the underlying biology of the cancer, the location of the bladder in the pelvis which may impact vascular function (such as compression of iliac veins), and treatment types (surgical or systemic). In addition, platinum chemotherapies, which are commonly used to treat bladder cancer, are associated with a higher risk of VTE than other types of chemotherapies.^{7,8}

Randomized trials have demonstrated that thromboprophylaxis with a direct oral anticoagulant (DOAC) reduces the risk of VTE by approximately 60% in ambulatory cancer patients with intermediate to high risk of VTE (defined as Khorana score ≥ 2) receiving chemotherapy.^{9,10} The generalizability of these results to the bladder cancer population is unknown because there were only 5 patients with bladder cancer in the AVERT trial and 32 with genitourinary (GU) (bladder, testis, ureter, kidney) cancers in the CASSINI trial.^{9,10}

Current guidelines from the American Society of Hematology (ASH) stratify cancer patients starting chemotherapy into risk categories using the Khorana score and recommend thromboprophylaxis for high-risk patients. For intermediate risk patients, the ASH provides a conditional recommendation for thromboprophylaxis or no thromboprophylaxis, due to the lack of certainty surrounding the benefit risk ratio.¹¹ Given the lack of data directly addressing thromboprophylaxis during chemotherapy for patients with bladder cancer, it is likely that practice patterns across Canada are variable and could be improved with additional research. This variability has been reported in a previous survey among physicians of one Canadian academic center.¹²

We hypothesize that patients with bladder cancer receiving chemotherapy in Canada are not routinely offered thromboprophylaxis. The objective of this study was to characterize thromboprophylaxis practice patterns of Canadian urologic oncologists and medical oncologists, to identify current research gaps in this area and to assess physician interest regarding clinical trials studying the role of thromboprophylaxis during chemotherapy for patients with bladder cancer.

Methods

A cross-sectional, observational study was performed using an online survey. Institutional ethics review board approval was obtained (REB Protocol 20210413-01H). A pilot questionnaire was developed and tested amongst 3 uro-oncologists and one medical oncologist in June 2021. Survey questions were revised for clarity and content using feedback received in the pilot survey. Questions were formatted as multiple choice or short-answer. Survey responses were anonymous, however, respondents had the opportunity to provide their contact information if they were interested in participating in future related clinical trials.

An electronic survey was generated on LimeSurvey[®] and distributed via email. All questions and answers were in English. The survey was distributed to urologic oncologists and medical oncologists in Canada who manage advanced bladder cancer. Eligible participants were identified by study investigators based on prior participation in national meetings or membership in sub-speciality associations related to management of advanced bladder cancer. Two emails (one initial and one reminder) containing a secure link to the questionnaire were sent between July 30, 2021 and September 19, 2021.

Survey questions were designed to assess physicians' perceptions and practice patterns related to thromboprophylaxis in patients with bladder cancer undergoing chemotherapy. The first question of the survey confirmed that the respondent managed patients with advanced bladder cancer. The survey was stopped for respondents who indicated they did not manage advanced bladder cancer.

The survey was then divided into four sections of questions. In the first section, participants were questioned regarding their perception of VTE risk for patients with bladder cancer receiving chemotherapy as well as their familiarity with VTE risk scores such as the

Khorana score and CATScore.^{4,13} The Khorana score assigns points based on cancer type, body mass index, and laboratory parameters (elevated platelets, low hemoglobin, and high leukocyte count); with higher scores associated with higher risk of VTE. The CATscore assigns risk using cancer site and D-Dimer level prior to chemotherapy.

The second section explored the respondents' current practices and perceived barriers or concerns with thromboprophylaxis in different clinical settings including neoadjuvant chemotherapy for patients with localized disease and chemotherapy for patients with metastatic disease. For example, physicians were asked if they routinely offer thromboprophylaxis and if so, how they select patients. Reasons for not offering thromboprophylaxis were also explored.

The third section evaluated physicians' familiarity, knowledge, and opinions about existing evidence related to thromboprophylaxis in patients with cancer.

In the final section, the survey explored opinions regarding future research needs (knowledge gaps) that exist related to thromboprophylaxis for patients with bladder cancer and gauged interest in participating in clinical trials on this topic. Basic information of respondents including subspecialty (medical or urologic oncology), province of practice, and years since finishing training was collected to determine if these characteristics were associated with responses. The full survey is available for review (Supplementary Materials).

Descriptive analyses of survey responses were reported for all respondents and stratified by sub-speciality (urologic oncology and medical oncology) because it was anticipated that practice patterns and perceptions may vary between specialities. Respondents who terminated the survey early after initiation and completed < 10% of the questions were excluded.

Results

Respondent demographics

Seventy physicians were emailed the online survey, including 32 urologic oncologists and 38 genitourinary medical oncologists. There were 38 physicians who initiated the survey; however, 2 responders were excluded because they terminated the survey prematurely (<10% completed), leaving 36 (51%) with complete responses. Twenty urologic oncologists (56%) and 16 medical oncologists (44%) provided complete responses. All 36 respondents included in analyses reported managing patients with invasive bladder cancer who may receive chemotherapy. Respondents had varying experience in practice, with 5 (14%), 11 (31%), and 11 (31%) reporting being in practice for 5-10 years, 11-20 years, and more than 20 years, respectively. Nine (25%) did not indicate their years of practice. Respondents included physicians practicing in 7 Canadian provinces, with half working in Ontario (Table 1).

Perception of VTE risk during chemotherapy

Thirty-five respondents (97%) believed that exposure to platinum-based chemotherapy increases the risk of VTE including all medical oncologists and all but one urologist. For patients receiving neoadjuvant chemotherapy for bladder cancer, 2 (6%) physicians estimated the risk of

developing VTE to be less than 5%, while 19 (53%), 7 (19%), 5 (14%) and 3 (8%) estimated the risk to be 10%, 15%, 20% and $\geq 20\%$, respectively (Figure 1). Twenty-three (64%) respondents were familiar with at least one validated score to stratify VTE risk (Khorana score or CATScore) and Khorana score was the most known. Thirteen (36%) physicians were not familiar with either score, 11 (85%) of whom were urologists.

Practice patterns regarding thromboprophylaxis

For patients with bladder cancer receiving neoadjuvant chemotherapy, 25 (69%) respondents indicated that they do not routinely recommend pharmacologic thromboprophylaxis including 13 of 16 medical oncologists. Six (17%) physicians recommend prophylaxis if patients are considered high risk according to a stratification score, and 5 (14%) recommend prophylaxis for most patients (Figure 2). Reasons provided by the 25 respondents who did not routinely recommend thromboprophylaxis included 10 (40%) who defer the decision to another physician, 8 (32%) who did not believe there is evidence to support thromboprophylaxis in this setting, and 4 (16%) who are concerned about the risk of bleeding (Figure 3). The 4 respondents concerned about bleeding were all medical oncologists and 9 of the 10 physicians deferring the decision to another physician were urologic oncologists. Similar responses and rationales were observed concerning thromboprophylaxis practice patterns in patients with bladder cancer receiving chemotherapy in the metastatic setting with 27 (75%) not routinely recommending prophylaxis, 6 (17%) recommending prophylaxis for high-risk patients, and 3 (8%) recommending prophylaxis for most.

Need for additional research

Most respondents, 28 (78%), believe that further studies are required to evaluate the risk of VTE in patient receiving chemotherapy for bladder cancer. Moreover, 32 (89%) believe that a randomized clinical trial is needed to determine the efficacy and safety of pharmacologic thromboprophylaxis versus placebo in patients with bladder cancer receiving neoadjuvant chemotherapy. Thirty (83%) respondents indicated they would recommend thromboprophylaxis if a randomized trial were to demonstrate a 60% reduction in VTE risk with an absolute 1% increase in risk of bleeding. There was strong interest among respondents to participate in thromboprophylaxis trials with 34 (94%) indicating that they would consider participating. Furthermore, 24 (67%) recommended including both patients receiving either neoadjuvant chemotherapy for localized disease or chemotherapy for metastatic disease in a clinical trial.

Discussion

This study aimed to evaluate practice patterns and perceptions of Canadian urologic oncologists and genitourinary medical oncologists concerning thromboprophylaxis for patients with bladder cancer receiving chemotherapy. We found that almost all respondents believe the risk of VTE during chemotherapy for bladder cancer exceeds 10%, exceeding a threshold of risk for which prophylaxis is usually recommended.⁴ Despite acknowledging a very high risk, less than one third of responders routinely recommend thromboprophylaxis to their patients, mostly because there is felt to be a lack of evidence, concerns about bleeding, or a deferral of the decision to another physician. Almost all respondents believed that additional studies of thromboprophylaxis in the bladder cancer population are needed.

VTE risk in patients with cancer receiving systemic therapy can be estimated in several ways. The most commonly used and validated tool is the Khorana score.⁴ This score categorizes patients into low- (score 0), intermediate- (score 1-2), and high-risk (score ≥ 3) categories; associated with a 3-month VTE risk of 0.8%, 1.8%, and 7.1% respectively.⁴ Notably, in the Khorana score, all patients with bladder cancer have at least intermediate risk because a bladder cancer diagnosis is attributed 1-point as prior studies have shown these patients are at elevated risk compared to most cancer patients.^{4,11} Guidelines from major organizations such as The American Society of Hematology recommend thromboprophylaxis for patients who fall into the high risk category on the Khorana score and suggest considering prophylaxis for intermediate risk patients.¹¹

In this survey, almost all respondents believed that patients with bladder cancer receiving chemotherapy have a VTE risk that exceeds the high-risk Khorana score group. One large multicenter study including over 700 patients with bladder cancer (including many Canadian patients) confirmed this perception, reporting a VTE risk of 14% from the start of neoadjuvant chemotherapy to 6 months post-operative. Other studies have reported a VTE risk as high as 35% in the same population.¹⁴⁻¹⁷ Despite this, 75% of respondents in this survey do not routinely recommend thromboprophylaxis for this patient population. Therefore, it appears perceived risk and clinical practice patterns diverge from one another. Reasons identified in this survey for this disconnect include: uncertainty about how to apply existing evidence to patients with bladder cancer, deferring the decision to other providers (response of most urologic oncologists), and concerns about bleeding.

Previous reports indicate use of neoadjuvant chemotherapy (NACT) in Canada have increased over time. Although contemporary population level practice patterns have not been reported, an Ontario-based study reported the uptake of NACT among 5582 patients who had undergone cystectomy increased from 4% to 27% between 1994 and 2008.¹⁸ A more recent study on 165 patients who underwent cystectomy at one tertiary Canadian center reported that 77 (46.7%) patients received NACT from January 2016 and April 2020.¹⁹ These increasing rates

reflect current guidelines and education, and indicate the results of this survey will impact great number of patients.

Two recent randomized controlled trials, AVERT and CASSINI, established the role of thromboprophylaxis with a DOAC in ambulatory cancer patients with Khorana score ≥ 2 receiving systemic therapy. The AVERT trial randomized 574 patients to apixaban or placebo and reported that apixaban significantly reduced the risk of VTE from 10.2% to 4.2% (HR 0.41, 95% confidence interval (CI) 0.26-0.65)¹⁰, corresponding to a number needed to treat of 17. The CASSINI trial randomized 841 patients to rivaroxaban or placebo and found that rivaroxaban reduced the risk of VTE from 6.4% to 2.6% (HR 0.4, 95% CI 0.2-0.8) during treatment.⁹ Despite these findings, our survey indicates that physicians may not be familiar with this evidence or may feel the results are not generalizable to the bladder cancer population. Indeed, there were only 5 patients with bladder cancer in the AVERT trial and 32 with genitourinary cancers (bladder, testis, ureter, kidney) in the CASSINI trial, comprising 1% and 3.8% of the respective study populations.^{9,10} Notably, 83% of respondents indicated that they would recommend thromboprophylaxis if a 60% reduction in VTE events was demonstrated in patients with bladder cancer (the same risk reduction reported by AVERT and CASSINI).

Another concern for initiating thromboprophylaxis for patients with bladder cancer is bleeding (16% of respondents). The AVERT trial reported a 2.1% risk of major bleeding with apixaban compared to 1.1% with placebo (HR 1.89, 95% CI 0.39-9.24).¹⁰ Similarly, the CASSINI trial reported a 2% risk of major bleeding with rivaroxaban compared to 1% with placebo (HR 1.96, 95% CI 0.59-6.49).⁹ Bleeding may be of particular concern in patients with bladder cancer as trials investigating DOACs as treatment for cancer associated thrombosis have shown an increased risk of hematuria, likely due to the mucosal-based location of bladder tumors and ability of patients to easily detect bleeding in the urine.^{20,21} The AVERT trial reported that bleeding events were mainly due to higher rates of hematuria, gastrointestinal and gynecologic bleeding.

The 2021 American Society of Hematology guideline identified that research studies which assess the role of thromboprophylaxis by specific disease site were a research priority.¹¹ This designation as a research priority is reflected in our survey where 89% of respondents indicated that they believed a randomized trial is needed to demonstrate efficacy and safety of thromboprophylaxis specifically in the bladder cancer population. Furthermore, we found a great interest of Canadian GU oncologists (94% of respondents) in pursuing and participating in additional research on this topic. Based on these results, our group has designed a randomized controlled for patients with genitourinary cancers initiating systemic therapy and at elevated risk of VTE. The trial will randomize patients to a direct oral anticoagulant or placebo, and have a similar design to landmark trials such as AVERT and CASSINI but focused on the genitourinary population. This trial will provide direct evidence addressing the benefit and risks of

thromboprophylaxis in bladder cancer and will address the concerns addressed by respondents of this survey.

Limitations

This study has a number of limitations to consider. First, the number of respondents is relatively small. The primary reason for the small sample size is that the advanced bladder cancer population is primarily managed by highly specialized physicians in Canada. We targeted physicians known to have an interest in advanced bladder cancer to ensure an acceptable response rate and reduce respondent bias. Second, the survey was limited to Canadian GU oncologists who predominantly worked at academic centers, therefore reported practice patterns may differ from physicians at non-academic centers and in other countries. Third, while we found that approximately 75% of respondents do not routinely recommend thromboprophylaxis for patients receiving chemotherapy for bladder cancer, a significant number reported deferring the decision to another provider. The proportion of medical oncologists recommending prophylaxis was however similar to urologists, indicating the deferral of decisions to another provider likely is not changing the proportion of patients receiving thromboprophylaxis overall.

Conclusions

Patients with bladder cancer receiving chemotherapy have very high risk of VTE but do not routinely receive thromboprophylaxis. We identified a strong desire amongst Canadian urologic and medical oncologists to participate in a clinical trial of thromboprophylaxis in patients with bladder cancer receiving chemotherapy.

References

1. Brenner DR, Weir HK, Demers AA, et al. Projected estimates of cancer in Canada in 2020. *CMAJ*. 2020;192(9). doi:10.1503/cmaj.191292
2. Khorana A, Francis CW, Culakova E, Kuderer NM, Lyman GH. Thromboembolism is a leading cause of death in cancer patients receiving outpatient chemotherapy. *Journal of Thrombosis and Haemostasis*. 2007;5(3):632-634. doi:10.1111/J.1538-7836.2007.02374.X
3. Mulder F, Horváth-Puhó E, van Es N, et al. Venous thromboembolism in cancer patients: a population-based cohort study. *Blood*. 2021;137(14):1959-1969. doi:10.1182/BLOOD.2020007338
4. Khorana A, Kuderer NM, Culakova E, Lyman GH, Francis CW. Development and validation of a predictive model for chemotherapy-associated thrombosis. *Blood*. 2008;111(10). doi:10.1182/blood-2007-10-116327
5. Brennan K, Karim S, Doiron R, Siemens R, Booth C. Venous Thromboembolism and Peri-Operative Chemotherapy for Muscle-Invasive Bladder Cancer: A Population-based Study. *Bladder Cancer*. 2018;4(4):419-428. doi:10.3233/BLC-180184
6. Duivenvoorden W, Daneshmand S, Canter D, et al. Incidence, Characteristics and Implications of Thromboembolic Events in Patients with Muscle Invasive Urothelial Carcinoma of the Bladder Undergoing Neoadjuvant Chemotherapy. *J Urol*. 2016;196(6):1627-1633. doi:10.1016/J.JURO.2016.06.017
7. Seng S, Liu Z, Chiu S, et al. Risk of venous thromboembolism in patients with cancer treated with Cisplatin: a systematic review and meta-analysis. *J Clin Oncol*. 2012;30(35):4416-4426. doi:10.1200/JCO.2012.42.4358
8. Di Nisio M, Candeloro M, Rutjes AWS, Porreca E. Venous thromboembolism in cancer patients receiving neoadjuvant chemotherapy: a systematic review and meta-analysis. *Journal of Thrombosis and Haemostasis*. 2018;16(7):1336-1346. doi:10.1111/jth.14149
9. Khorana A, Soff G, Kakkar A. Rivaroxaban for Thromboprophylaxis in High-Risk Ambulatory Patients with Cancer. *N Engl J Med*. 2019;380(8):720-728. doi:10.1056/NEJMOA1814630
10. Carrier M, ABou-Nassar K, Mallick R, et al. Apixaban to Prevent Venous Thromboembolism in Patients with Cancer. *N Engl J Med*. 2019;380(8):711-719. doi:10.1056/NEJMOA1814468
11. Lyman GH, Carrier M, Ay C, et al. American Society of Hematology 2021 guidelines for management of venous thromboembolism: Prevention and treatment in patients with cancer. *Blood Advances*. 2021;5(4). doi:10.1182/bloodadvances.2020003442
12. McAlpine K, Breau RH, Carrier M, et al. Thromboprophylaxis practice patterns and beliefs among physicians treating patients with abdominopelvic cancers at a Canadian centre. *Canadian Journal of Surgery*. 2021;63(6):E262-E268. doi:10.1503/CJS.015219
13. Pabinger I, van Es N, Heinze G, et al. A clinical prediction model for cancer-associated venous thromboembolism: a development and validation study in two independent prospective cohorts. *The Lancet Haematology*. 2018;5(7). doi:10.1016/S2352-3026(18)30063-2

14. Brennan K, Karim S, Christopher Doiron R, Robert Siemens D, Booth CM. Venous Thromboembolism and Peri-Operative Chemotherapy for Muscle-Invasive Bladder Cancer: A Population-based Study. *Bladder Cancer*. 2018;4(4):419-428. doi:10.3233/BLC-180184
15. Zareba P, Patterson L, Pandya R, et al. Thromboembolic events in patients with urothelial carcinoma undergoing neoadjuvant chemotherapy and radical cystectomy. *Urologic Oncology: Seminars and Original Investigations*. 2014;32:975-980. doi:10.1016/j.urolonc.2014.03.025
16. Schomburg JL, Krishna S, Cotter KJ, Soubra A, Rao A, Konety BR. Preoperative Incidence of Deep Venous Thrombosis in Patients With Bladder Cancer Undergoing Radical Cystectomy. *Urology*. 2018;116:120-124. doi:10.1016/j.urology.2018.01.052
17. Duivenvoorden WCM, Daneshmand S, Canter D, et al. Incidence, Characteristics and Implications of Thromboembolic Events in Patients with Muscle Invasive Urothelial Carcinoma of the Bladder Undergoing Neoadjuvant Chemotherapy. *Journal of Urology*. 2016;196(6):1627-1633. doi:10.1016/j.juro.2016.06.017
18. Booth CM, Karim S, Brennan K, et al. Perioperative chemotherapy for bladder cancer in the general population: Are practice patterns finally changing? *Urol*. 2018;36(3). doi:10.1016/j.urolonc.2017.11.015
19. Ross JPJ, Breau RH, Vigil H, et al. Association between radical cystectomy prophylactic antimicrobial regimen and postoperative infection. *Can Urol Assoc J*. 2021;15(12). doi:10.5489/CUAJ.7158
20. Khorana AA, Dalal M, Lin J, Connolly GC. Incidence and predictors of venous thromboembolism (VTE) among ambulatory high-risk cancer patients undergoing chemotherapy in the United States. *Cancer*. 2013;119(3):648-655. doi:10.1002/cncr.27772
21. Moik F, Posch F, Zielinski C, Pabinger I, Ay C. Direct oral anticoagulants compared to low-molecular-weight heparin for the treatment of cancer-associated thrombosis: Updated systematic review and meta-analysis of randomized controlled trials. *Research and Practice in Thrombosis and Haemostasis*. 2020;4(4). doi:10.1002/rth2.12359

Figures and Tables

Figure 1. Respondent estimates of VTE risk in patients receiving neoadjuvant chemotherapy for bladder cancer. VTE: venous thromboembolism.

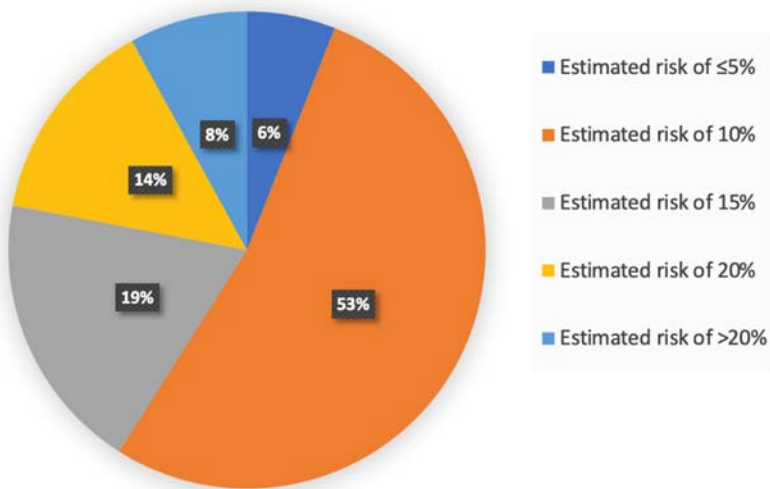


Figure 2. Physicians' practice patterns regarding recommending thromboprophylaxis for (A) patients with bladder cancer receiving neoadjuvant chemotherapy; and (B) receiving chemotherapy for metastatic disease.

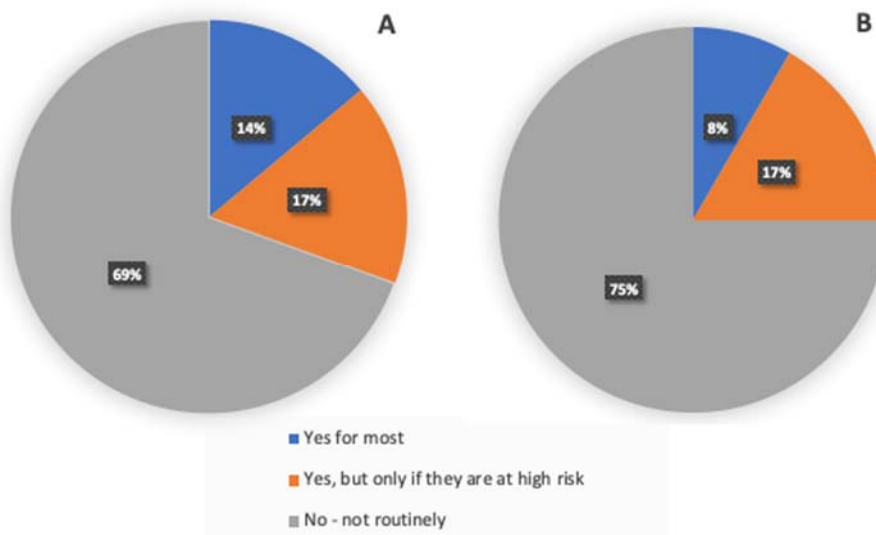


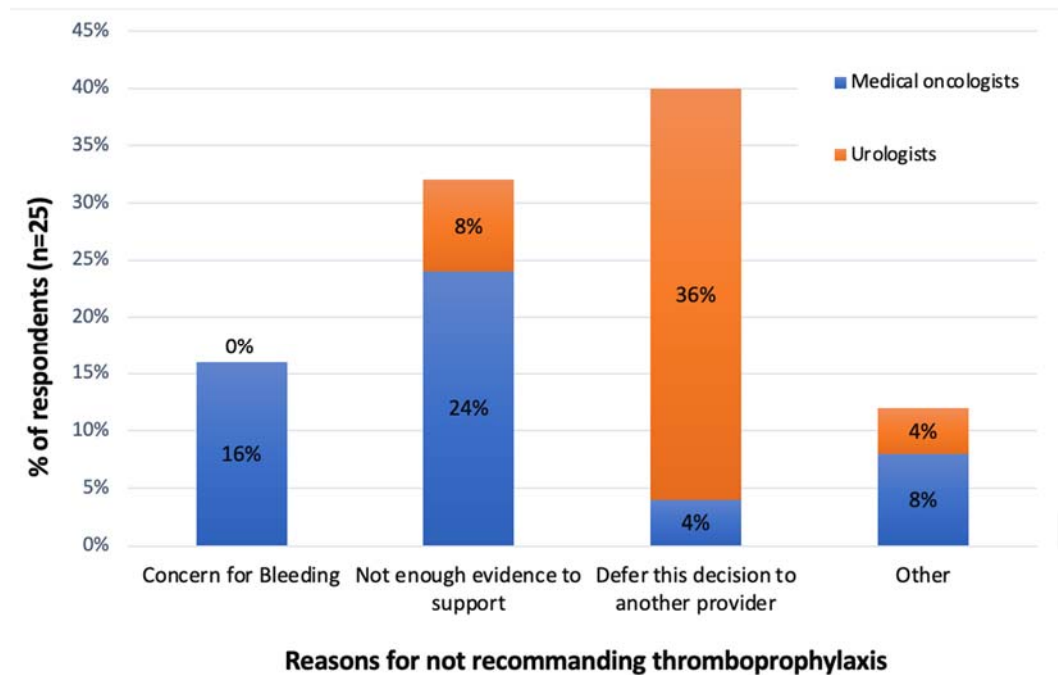
Figure 3. Reasons reported by physicians who did not routinely recommend thromboprophylaxis to patients receiving neoadjuvant chemotherapy.

Table 1. Demographic data of respondents	
	n (%)
Year in practice	
<5	0 (0)
5–10	5 (14)
11–20	11 (31)
>20	11 (31)
Not specified	9 (25)
Medical discipline	
Urologic oncology	20 (56)
Medical oncology	16 (44)
Province of practice	
Ontario	18 (50)
Quebec	6 (17)
British Columbia	3 (8)
Manitoba	3 (8)
Nova Scotia	3 (8)
Alberta	2 (6)
New Brunswick	1 (3)