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Short communication

Compliance of clinical practice with guidelines on surgery thromboprophylaxis in urologic patients

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Introduction

Patients undergoing urologic surgery are at high risk for venous thromboembolism (VTE), with a 30-day deep vein thrombosis incidence of approximately 0.76% to 1% (Manivasagam et al., 2026). However, thromboprophylaxis may increase the risk of bleeding, requiring a careful balance between preventing VTE and minimizing hemorrhagic complications.

Clinical practice regarding thromboprophylaxis in urologic surgery varies considerably due to discrepancies among national and international recommendations. To address this, the European Association of Urology (EAU) updated its Guidelines on Thromboprophylaxis in Urological Surgery, incorporating evidence on procedure-specific risks of VTE and serious bleeding, as well as the perioperative management of antithrombotic therapy (Tikkinen et al., 2022). Recommendations were developed by calculating the net benefit of thromboprophylaxis for each surgical procedure and patient risk factor stratum, graded based on the quality of evidence.

The aim of this study was to assess the compliance of clinical practices at the PHI University Clinic of Urology in Skopje with these EAU guidelines.

Materials and methods

This retrospective study, approved by the Clinic's Ethics Committee, used Venicom software to analyze 30 urological surgery patients aged 42–80. The cohort underwent 21 renal cancer operations and 9 prostate surgeries. The VTE risk level was stratified into low, medium, and high using patient-related factors (age, BMI, family history of VTE, and prior VTE) and secondary clinical factors (type and duration of surgery, immobility, spinal cord injury, inherited blood disorders, implanted prosthetic heart valves, stent placement, TIA, stroke, and oral contraceptive use), excluding very high-risk individuals. All mechanical prophylaxis and pharmacological antithrombotic regimens were tracked, and specific drug classes, timing relative to surgery, duration, and dosages were documented.

Results and discussion

According to high-quality evidence, around 50% of major bleeding events occur between surgery and the following morning, and 90% persist during the first 4 postsurgical days, while the risk of VTE remains relatively constant during the first 4 postoperative weeks (Tikkinen et al., 2022; Singh et al., 2023). Therefore, the EAU Panel recommends initiating thromboprophylaxis on the morning after

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surgery and continuing treatment for approx. 4 weeks postoperatively. In the present study, however, thromboprophylaxis was most commonly initiated either on the day before or on the day of surgery, and in no patient on the morning after surgery. Previous antiplatelet agent (mainly aspirin) was appropriately stopped 3–7 days before surgery. However, the same or alternative agent was not resumed during hospitalization, contrary to Panel recommendations for patients without high risk of thrombosis to restart typically 4 days postoperatively once bleeding risk is no longer significant (strong, moderate quality evidence).

For patients undergoing laparoscopic partial nephrectomy, the EAU Guidelines recommend mechanical thromboprophylaxis until ambulation (weak-for), while pharmacological prophylaxis is generally not recommended (weak-against) except in high-risk patients (strong-for). In contrast, both mechanical and pharmacological prophylaxis are suggested for patients undergoing open partial nephrectomy (weak-for). In this study, three patients undergoing partial nephrectomy were classified as low risk for VTE, while one patient undergoing open partial nephrectomy had medium VTE risk due to BMI $\geq$ 35 kg/m². Nevertheless, all patients received pharmacological prophylaxis with enoxaparin 40–60 mg once daily for 1.7–2.8 weeks, regardless of individual risk stratification.

Similar recommendations apply to laparoscopic radical and open radical nephrectomy. Among the five patients who underwent laparoscopic radical nephrectomy, two were classified as medium risk for VTE due to obesity, while the remaining patients had low VTE risk. Despite this, all patients received enoxaparin prophylaxis. Medium-risk patients were treated several days before surgery, received higher doses, and continued therapy for longer periods. Most patients in the study underwent open radical nephrectomy (n=10), with nine classified as low risk for VTE. Although these patients received the recommended prophylactic dose of enoxaparin (40 mg once daily), the treatment duration was shorter (2–2.5 weeks) than the approximately 4 weeks recommended by the EAU Guidelines.

Nine patients underwent transurethral resection of the prostate or equivalent procedures, including seven with low VTE risk and two with medium risk related to obesity. According to the EAU Guidelines, both pharmacological and mechanical thromboprophylaxis are generally not recommended for these procedures (weak-against), except for high-risk patients, in whom mechanical prophylaxis until ambulation may be considered (weak-for). However, all patients in this group received enoxaparin prophylaxis for 2–13 days.

Apart from early ambulation, no mechanical thromboprophylaxis was recommended.

Conclusion

Clinical practice showed partial compliance with the EAU Guidelines. Pharmacological prophylaxis was often prescribed even in low-risk patients and in procedures for which only mechanical or no prophylaxis is recommended. Although enoxaparin was commonly used in appropriate prophylactic doses, thromboprophylaxis was frequently initiated earlier than recommended and administered for a shorter duration than the advised one. In addition, no specific medical devices for mechanical thromboprophylaxis were recommended to any patient. As good clinical practice, early ambulation for all patients after surgery was initiated. These findings indicate variability between current clinical practice and Guidelines recommendations, emphasizing the need for improved adherence to evidence-based thromboprophylaxis strategies in urological surgery along with the clinical expertise in treatment of individual patients.

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