

American Academy of Orthopaedic Surgeons Clinical Guideline
on
Prevention of Symptomatic Pulmonary Embolism in Patients
Undergoing Total Hip or Knee Arthroplasty

Summary of Recommendations

The following recommendations are based on a systematic review of the literature and are evidence-based

Recommendation 3.3 Chemoprophylaxis of patients undergoing hip or knee replacement

Recommendation 3.3.1 Patients at standard risk of both PE and major bleeding should be considered for one of the chemoprophylactic agents evaluated in this guideline, including-in alphabetical order: **Aspirin, LMWH, synthetic pentasaccharides, and warfarin.** (Level III, Grade B (choice of prophylactic agent), Grade C (dosage and timing))

Note: The grade of recommendation was reduced from B to C for dosage and timing because of the lack of consistent evidence in the literature defining a clearly superior regime.

Recommendation 3.3.2 Patients at elevated (above standard) risk of PE and at standard risk of major bleeding should be considered for one of the chemoprophylactic agents evaluated in this guideline, including-in alphabetical order: **LMWH, synthetic pentasaccharides, and warfarin.** (Level III, Grade B (choice of prophylactic agent), Grade C (dosage and timing)).

Note: The grade of recommendation was reduced from B to C for dosage and timing because of the lack of consistent evidence in the literature on risk stratification of patient populations.

Recommendation 3.3.3 Patients at standard risk of PE and at elevated (above standard) risk of major bleeding should be considered for one of the chemoprophylactic agents evaluated in this guideline, including-in alphabetical order: **Aspirin, Warfarin, or none.** (Level III, Grade C)

Note: The grade of recommendation was reduced from B to C for dosage and timing because of the lack of consistent evidence in the literature on risk stratification of patient populations.

Recommendation 3.3.4 Patients at elevated (above standard) risk of both PE and major bleeding should be considered for one of the chemoprophylactic agents evaluated in this guideline, including-in alphabetical order: **Aspirin, Warfarin, or none.** (Level III, Grade C)

Note: The grade of recommendation was reduced from B to C for dosage and timing because of the lack of consistent evidence in the literature on risk stratification of patient populations. No studies currently include patients at elevated risk of major bleeding and/or PE in study groups.

The following additional recommendations are based on the results of the objective AAOS Consensus Process in which the work group members participated.

Recommendation 1.1 All patients should be assessed pre-operatively for elevated risk (greater than standard risk) of pulmonary embolism. (Level III, Grade B)

Recommendation 1.2 All patients should be assessed pre-operatively for elevated risk (greater than standard risk) of major bleeding. (Level III, Grade C)

Note: Grade of Recommendation reduced because of lack of consistent evidence on risk stratification of patient populations.

Recommendation 1.3 Patients with known contraindications to anticoagulation should be considered for vena cava filter replacement. (Level V, Grade C)

Recommendation 2.1 Patients should be considered for intra-operative and/or immediate postoperative mechanical prophylaxis. (Level III, Grade B)

Recommendation 2.2 In consultation with the anesthesiologist, patients should be considered for regional anesthesia. (Level IV, Grade C)

Recommendation 3.1 Post-operatively, patients should be considered for continued mechanical prophylaxis until discharge to home. (Level IV, Grade C)

Recommendation 3.2 Post-operatively, patients should be mobilized as soon as feasible to the full extent of medical safety and comfort. (Level V, Grade C)

Recommendation 3.4 Routine screening for DVT or PE post-operatively in asymptomatic patients is not recommended. (Level III, Grade B)

Recommendation 4.1 Patients should be encouraged to progressively increase mobility after discharge to home. (Level V, Grade C)

Recommendation 4.2 Patients should be educated about the common symptoms of deep venous thrombosis and pulmonary embolism. (Level V, Grade B)

Note: The level of evidence is level V, expert opinion, but the strength of recommendation is B rather than C because patient education is consistent with the minimal expected standard of care for today's medical practices.

Of the fourteen recommendations listed above, only recommendations 3.3.1, 3.3.2, 3.3.3 and 3.3.4 are based on the systematic review of the literature conducted between August 2006 and March 2007 by The Center for Clinical Evidence Synthesis at Tufts New England Medical Center. The other recommendations contained in this guideline are based on consensus development methods only.