1-Pager: Prevention of Venous Thromboembolism (VTE) in Total Hip/Knee Replacement Surgery

Kaiser Permanente Hawaii (KPHI) VTE Prevention Evidence Synthesis and Guideline for Preventing Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE) in Total Hip and Knee Replacement Surgery

Conclusions and Recommendations

- The risk of Venous Thromboembolism (VTE) in total hip replacement (THR) and total knee replacement (TKR) surgery without VTE prophylaxis is extremely high with reported figures of 41% to 85%.
- With use of mechanical compression and pharmacological prophylaxis some studies report incidence rates of 10% to 15%.
- Kaiser Permanente Hawaii (KPHI) VTE Prevention Guideline Team recommends —
  - Mechanical compression devices be used in conjunction with recommended pharmacological agents (enoxaparin, warfarin, fondaparinux or aspirin).
  - Both compression devices and recommended pharmacological agents be continued at least through hospital discharge to achieve the lowest possible DVT rates in THR and TKR surgery.
  - Until further evidence is available, decisions regarding the extension of VTE prophylaxis beyond hospitalization be individualized following risk assessment.
  - **Aspirin alone not be used** as VTE prophylaxis in THR and TKR surgery based on fair evidence that aspirin alone is not effective in preventing VTE. In one study the DVT rate with ASA alone was 47%.

Evidence Synthesis

- The level of evidence (LOE) is fair for reduction of overall DVT rates with mechanical compression devices used in conjunction with recommended pharmacological agents; LOE is inconclusive for reduction of symptomatic DVT, proximal DVT and PE rates.

Dosing Information

Enoxaparin: THR: 30 mg bid or 40 mg once daily (starting 12-24 hours after surgery; TKR: 30 mg bid (starting 12-24 hours after surgery.

- The dosage of enoxaparin should be adjusted for level of renal function.

Fondaparinux: 2.5mg given subcutaneously once daily.

- Fondaparinux is not recommended in patients with GFR of <30ml/min.

Aspirin: 325 mg enteric coated twice daily.

- **Note: The KPHI VTE Prevention Guideline Team recommends against the use of aspirin alone for VTE prophylaxis in THR and TKR surgery.** (LOE: Fair for lack of efficacy)

Warfarin: An acceptable alternative for VTE prophylaxis especially if the patient has been on maintenance warfarin prior to surgery for other reasons.

- The KPHI VTE Prevention Guideline Team does not favor the use of warfarin for VTE prophylaxis because of the increased risk of VTE from delay of first administration of warfarin to achievement of therapeutic drug levels.
- If warfarin is used, it should be continued post-discharge for at least 14 days and preferably for 4 to 6 weeks with a goal of INR 2-3.

Duration

The following recommendations are based on study data and consensus of the KPHI VTE Prevention Guideline Team (LOE: Inconclusive).

- **Pharmacological Agents Beyond Hospitalization**: Until further evidence is available, decisions regarding the extension of VTE prophylaxis beyond hospitalization should be individualized following risk assessment.
- **Mechanical Devices:** Mechanical devices should be applied and monitored by trained staff immediately postoperatively and worn constantly during hospitalization except for cleaning or when walking in all patients undergoing THR or TKR surgery. There is insufficient evidence to make recommendations regarding use of mechanical devices following hospital discharge.

Documentation: KHPI Guideline date:4/23/09; Development Process: Qualitative systematic review with evidence grading of studies and level of evidence (LOE) ratings for outcomes; audit, appraisal and use of included studies from national guidelines; search update; recommendations tagged with LOE ratings. References and details of the evidence review and recommendations are available by request to **delfini@delfini.org** • **1-Pager Prepared by:** Michael Stuart MD & Sheri Strite, Delfini Group: 9/6/2009