VTE Prophylaxis in

Critically Ill Adults

1982 — HEPARIN VS. PLACEBO

Among 119 critically ill patients, the incidence of deep vein thrombosis (DVT) was 13% in those receiving subcutaneous heparin at a dose of 5000 units every 12 hours, whereas the control group had an incidence of 29% (P <0.05).

CADE ET AL.

2000 — LMWH VS PLACEBO

Among 223 mechanically ventilated patients, the incidence of DVT was 15.5% in the nadroparin group, while it was 28.2% in the placebo group (p = 0.045).

FRAISSE ET AL.

2011 — LMWH VS UFH

In 3764 critically ill patients, dalteparin was found to be associated with a lower rate of pulmonary embolism (PE) compared to unfractionated heparin (UFH) (1% versus 2%; hazard ratio 0.5). However, dalteparin did not show any significant impact on DVT, bleeding, or mortality outcomes compared to UFH

PROTECT TRIAL

2015 — MECHANICAL VS CHEMICAL

A retrospective study of nonsurgical patients on mechanical ventilation, involving 329 patients in the chemical prophylaxis (CP) group and 419 patients in the mechanical prophylaxis (MP) group, the incidence of thromboembolic events (VTEs) was 0.3% in the CP group compared to 3.1% in the MP group (odds ratio of 9.9). The mortality rate was 34.3% in the CP group and 50.6% in the MP group.

GASPARD ET AL.

2019 — MECHANICAL + CHEMICAL

In a study of 2003 critically ill patients, DVT occurred in 3.9% of the 991 patients receiving both intermittent pneumatic compression and pharmacologic thromboprophylaxis, compared to 4.2% of the 1012 patients receiving pharmacologic thromboprophylaxis alone (p-value=0.74). Furthermore, no difference in VTE rates between the two groups (10.4% vs 9.4%).

PREVENT TRIAL

2022 — META-ANALYSIS

13 randomized trials that enrolled a total of 9619 critically ill patients reported that LMW heparin reduced the incidence of all DVT (OR 0.59, 95% CI 0.33-0.90; high certainty) when compared with control treatment (a composite of no prophylaxis, placebo, or compression stockings only). LMW heparin appeared to be more effective than UFH (OR 0.72, 95% CI 0.46-0.98; moderate certainty), and mechanical methods of thromboprophylaxis (eg, intermittent compressive devices) were least effective (OR 0.85, 95% CI 0.50-1.50; low certainty). The effect of combination therapy was unclear.

FERNANDO ET AL.

2012 ACCP Guidelines

For critically ill patients, we suggest using LMWH or low-dose unfractionated heparin (LDUH) thromboprophylaxis (Grade 2C).
For critically ill patients who are bleeding or are at high risk for major bleeding, we suggest mechanical thromboprophylaxis with graduated compression stockings and/or intermittent pneumatic compression at least until the bleeding risk decreases (Grade 2C).

Dosing

Enoxaparin 40 mg subcutaneously once daily (creatinine clearance >30 mL/minute and assuming no extremes in body weight)
UFH is 5000 units subcutaneously twice or three times daily (5000 to 7500 units three times daily in obese patients)