**Review: Low-molecular-weight heparin is effective and safe in the acute coronary syndromes**


**Question**
In patients with acute coronary syndromes (ACSs), is low-molecular-weight heparin (LMWH) as effective and safe as unfractionated heparin (UFH)?

**Data Sources**
Studies were identified by searching MEDLINE (1990 to 2002), lists of conference abstracts, and bibliographies of relevant studies; and by contacting experts and pharmaceutical companies.

**Study Selection**
Selected studies included randomized controlled trials (RCTs) that compared LMWH with UFH or placebo for ACS (including ST-elevation myocardial infarction [STEMI] and unstable angina/non–ST-elevation myocardial infarction [UA/NSTEMI]).

**Data Extraction**
Data were extracted on methods, participant numbers, interventions, and outcomes.

**Main Results**
4 large RCTs compared LMWH with UFH in UA/NSTEMI; 2 of these RCTs (7081 patients) showed that enoxaparin was more effective than UFH at 14 days for the combined endpoint of death, MI, and recurrent ischemia with or without revascularization. For the initial medical management of UA/NSTEMI, 2 RCTs compared LMWH plus glycoprotein (GP) IIb/IIIa inhibitor with UFH plus GP IIb/IIIa inhibitor and generally showed similar rates of ischemic events at 30 days. The rates of major hemorrhage were low in the LMWH and GP IIb/IIIa groups (range 0.3% to 1.8%) at 96 hours to 30 days.

For STEMI, 10 RCTs compared LMWH with control (UFH or placebo) after fibrinolytic therapy. Mortality at 30 days did not differ in 1 trial (7.1% vs 8.2%). 2 RCTs evaluated the 30-day composite endpoint of death, in-hospital reinfarction, or refractory ischemia. 1 trial found a significant benefit with LMWH (11.4% vs 15.4%, P < 0.001), and the other trial found no difference (14.2% vs 17.4%, P = 0.08). The rate of death, reinfarction, or rehospitalization at 3 months was reduced with LMWH in 1 RCT (26% vs 36%, P = 0.04). Most RCTs showed similar bleeding rates between the LMWH and control groups.

**Conclusion**
In patients with acute coronary syndromes, low-molecular-weight heparin is as safe and effective as unfractionated heparin.

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