Abstract: 45

**Adverse Dose Dependent Effects of Morphine Therapy in Acute Heart Failure**

**Authors:**
O Caspi\(^1\), NR Naami\(^2\), EA Halfin\(^2\), DA Aronson\(^1\), \(^1\)Rambam Health Care Campus, Cardiology - Haifa - Israel, \(^2\)Technion - Israel Institute of Technology - Haifa - Israel,

**Topic(s):**
Acute Heart Failure: Pharmacotherapy

**Citation:**
Aims: Morphine has been a pivotal therapy in acute heart failure (AHF) for more than a century. The evidence for morphine therapy in AHF remains controversial. This study sought to assess the therapeutic effect of morphine on patients with AHF.

Methods and Results: The study used a cohort of 13,788 patients admitted with a primary diagnosis of AHF. Propensity-score-matching was generated using 26 clinical variables. Primary endpoints included in-hospital mortality and invasive mechanical ventilation. Secondary endpoints included non-invasive ventilation, need for inotropes and acute kidney injury (AKI). 761 (5.5%) patients were treated with morphine in the first day following hospital admission. Propensity score matching yielded 672 patient pairs. The incidence of invasive ventilation was higher in the morphine-treated patients (7.4%) than in matched patients in the no-morphine cohort (3.6%), OR 2.13 (95% CI 1.32–3.57, \(P=0.007\)). In-hospital mortality was also higher in the morphine group (17.4%) than in the matched no-morphine group (13.4%), OR 1.43 (95% CI 1.05 to 1.98, \(P=0.024\)). For both the endpoint of invasive ventilation (\(Ptrend=0.005\)) and mortality (\(Ptrend=0.004\)), there was a significant linear dose-response relationship for the adverse effect of morphine. Morphine was associated with a significant increase in all secondary outcomes: Non-invasive ventilation (OR 2.78, 95% CI 1.95–3.96); Inotrope use (OR 3.50, 95% CI 2.10–5.82) and AKI (OR 1.81, 95% CI 1.39–2.36). A landmark analysis demonstrated no difference in post-discharge survival between cohorts. Conclusions: Morphine administration in is associated with significant dose-dependent risk for in-hospital mortality and need for mechanical ventilation.