SHORT AND LONG TERM MORTALITY IN NEW ONSET ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFT: A SYSTEMATIC REVIEW AND META-ANALYSIS
Roop K. Kaw, Adrian V. Hernandez, Iqbal Masood, Walid Saliba, A. Marc Gillinov, and Eugene H. Blackstone
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Background: Atrial fibrillation is the most common arrhythmia after cardiac surgery. Several studies have shown increased in-hospital mortality (IHM), while few others have shown increased long term mortality related to new onset atrial fibrillation (NAF) after cardiac surgery. Association between mortality and NAF is based on single institution studies and is not well established.

Methods: We performed a meta-analysis of cohort studies evaluating association between NAF and short (30 day or IHM) and long term mortality (> 6 months up to 4 years) and the risk factors associated with incident NAF after cardiac surgery. Three investigators conducted independent literature searches between 1960 till October 2008. We excluded studies involving atrial flutter and tachycardia, off-pump coronary artery bypass graft (CABG) and isolated valve surgery. Random effects models were used to account for heterogeneity among the studies.

Results: Approximately 1% of the studies (10 studies; n=39,496) met the selection criteria. 93% of patients (mean age 65 years, 75% male) underwent CABG only. All studies evaluated IHM and 4 studies also evaluated long term mortality. NAF was associated with higher risk of short-term mortality (3.6% vs 2% OR 2.11; CI[1.58-2.81], p< 0.00001); heterogeneity of effects was significant (p=0.0007). Risks for 6 months and 1 year mortality were (2.66 [1.95-3.65] and 2.51[2.06-3.07], respectively. Higher age, lower ejection fraction, and history of hypertension, stroke, heart failure and peripheral artery disease were strongly associated with NAF. Preoperative use of beta-blockers limitedly reduced the risk of NAF(OR 0.94[0.88-1.01]). Use of ACE inhibitors was associated with an increased risk of NAF(OR 1.20[1.11-1.29] p<0.00001.Longer cardio-pulmonary bypass (CPB) and aortic clamp times and use of intra-aortic balloon pump (IABP) were also associated with NAF.

Conclusions: NAF increases short and long term mortality in patients undergoing CABG. Among the modifiable factors use of beta-blockers was associated with decreased incidence of NAF while use of ACE inhibitors, IABP, longer CPB and aortic clamp times were all associated with increased incidence of NAF.
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