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Heart Failure and Cardiomyopathies

IMPACT OF DIASTOLIC DYSFUNCTION ON POST-OPERATIVE OUTCOMES AFTER CARDIAC SURGERY: A META-ANALYSIS

Poster Contributions
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Background: The impact of diastolic dysfunction, found on pre-operative echocardiogram, on post-operative mortality and complications after cardiac surgery has been investigated only in small studies and the results have been controversial.

Methods: We searched for articles which investigated the prognostic role of diastolic dysfunction on cardiac surgery in PubMed, Cochrane Library, Web of Science, Embase and Scopus until August 2014. A total of 14 studies were included in our meta-analysis. The primary outcome was post-operative mortality and the secondary outcomes were major adverse cardiac events (MACE), myocardial infarction (MI), atrial fibrillation (AF) and prolonged mechanical ventilation. Due to scarcity of outcome events, fixed-effects meta-analysis was performed using the Mantel-Haenszel method.

Results: Diastolic dysfunction on pre-operative echocardiogram was associated with higher post-operative mortality (OR 2.04, 95% CI 1.29-3.25; p=0.002), MACE (OR 1.86, 95% CI 1.32-2.63; p= 0.004) and prolonged mechanical ventilation (OR 2.08, 95% CI 1.04-4.16; p=0.04) among patients who underwent cardiac surgery. Post-operative MI and AF did not differ between the two groups. In a subgroup analysis, decreased left ventricular ejection fraction (LVEF) among patients with diastolic dysfunction, did not impact post-operative mortality (p= 0.32; I2=0%) when compared to patients with normal LVEF and diastolic dysfunction. Severity of pre-operative diastolic dysfunction was associated with increased post-operative mortality (OR 21.22, 95% CI 3.74-120.33; p=0.0006) and MACE (OR 5.15, 95% CI 2.90-9.14; p<0.00001) for Grade 3 diastolic dysfunction compared to patients with normal diastolic function. Due to scarcity of studies, subgroup analysis by type of cardiac surgery (CABG vs. CABG with valvular surgery) and type of echocardiogram (transthoracic vs. transeophageal) could not be done.

Conclusion: Presence of diastolic dysfunction on pre-operative echocardiogram was associated with higher post-operative mortality and MACE regardless of LVEF. Mortality and MACE were significantly higher in Grade III diastolic dysfunction.