

Prevention

ENDOTHELIAL FUNCTION ASSESSMENT AND MAJOR CARDIOVASCULAR OUTCOMES: AN UPDATED META-ANALYSIS

ACC Moderated Poster Contributions
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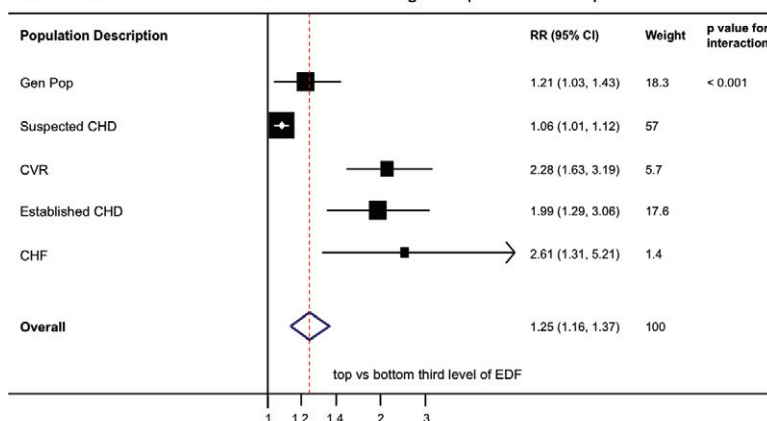
Background: Endothelial dysfunction (EDF) has been proposed as a strong marker of cardiovascular disease (CVD) risk. However, individual studies are small and do not allow reliable quantification of the strength of association.

Methods: We conducted a literature-based meta-analysis of available studies that had reported on EDF and CVD. Our inclusion criteria were studies which: described methods to assess endothelial function; recorded CVD outcomes; had ≥ 12 months follow up. Effect estimates for CVD were standardized across studies by comparing top 3rd vs. bottom 3rd of EDF. Study-specific relative risks (RR) were combined using random-effects meta-analysis.

Results: Thirty-three studies, involving 16,717 participants ($> 74,000$ person years follow-up) were eligible, reporting on 2,376 CVD events. The risk of CVD among those in the top vs. bottom third of EDF was 1.25 (95% CI, 1.15-1.36) with considerable heterogeneity across studies ($I^2 = 71\%$, $p < 0.001$). The effects were stronger among those with existing disease or among those with high risk factor burden compared with healthy individuals (p for interaction < 0.001). There was considerable publication bias as assessed by funnel plots and Egger's test.

Conclusion: In this largest study to date, EDF was found to be a significant but more modest predictor of CVD outcomes than previously reported. Significant publication bias and heterogeneity across studies suggest any potential clinical utility is premature.

Risk Ratios for CVDs both Overall and according to Population Description



Note: Gen Pop, Individuals from general population; CHD, individuals with either suspected or well established coronary heart disease; CVR, individuals with only cardiovascular risk factors; CHF, individuals with congestive heart failure.