

in the Brief Research Reports section of this *Journal*. Because such brief communications should contain no more than 750 words, we could not report all aspects of our literature research, statistical analysis, results, considerations, and conclusions. Reviewers and editors, however, found our work to be worthy of publication. Are Athanasiou and colleagues perhaps complaining about the ability of the Editor or reviewers of this *Journal*? Is one of them suggesting himself as the new Editor of this *Journal*?

Athanasiou and colleagues will be astonished to read that our conclusions are supported and confirmed in a Letter to the Editor from Takagi and associates,⁵ which is an update to our work. Is even Takagi's work an example of fast-track publication of a poorly conducted meta-analysis? Are Athanasiou and colleagues the only researchers who can publish reliable meta-analyses?

Looking to an another "evidence horizon," meta-analysis and systematic review of non-RCTs by Athanasiou and colleagues have encouraged the use of minimally invasive great saphenous vein harvesting in coronary artery bypass grafting.⁶ These conclusions have been strongly disputed by a recent very large study published in the *New England Journal of Medicine*.

Sometime, even a great researcher looks into a black hole.⁷

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TOTAL OCCLUSION AND STRING SIGN OF RADIAL ARTERY VERSUS SAPHENOUS VEIN GRAFT CONDUITS: AN UPDATED META-ANALYSIS To the Editor:

We read with great interest the article by Benedetto and associates.¹ In their meta-analysis of 5 randomized, controlled trials, they demonstrated no significant advantage of radial artery (RA) relative to saphenous vein graft (SVG) conduits in coronary artery bypass grafting for "graft failure" including "total occlusion" and "string sign" (random-effects risk difference [RD], -0.40; 95% confidence interval [CI], -0.128 to 0.048; $P = .372$). More recently, however, Hayward and collaborators² updated the results of the Radial Artery Patency and Clinical Outcomes (RAPCO) trial that were originally reported by Buxton and colleagues³ in 2003. We performed an updated meta-analysis of randomized, controlled trials of RA versus SVG conduits in coronary artery bypass grafting for "total occlusion," "string sign," and "graft failure" ("total occlusion" plus "string sign").

Although Buxton and colleagues³ estimated graft patency in only 24 RA and 22 SVG conduits in the RAPCO trial, Hayward and collaborators² performed protocol angiography in 53 patients assigned to receive RA conduits and 60 patients assigned to receive SVG conduits at mean follow-up of 5.5 years. In total, our meta-analysis included data on 1176 grafts (592 RA and 584 SVG). Pooled analysis of the 5 trials, including updated results² of the RAPCO trial, demonstrated a statistically significant reduction in "total occlusion" (random-effects RD, -0.07; 95% CI, -0.12 to -0.03; $P = .0009$; **Figure 1, A**) but a statistically significant increase in "string sign" (random-effects RD, 0.04; 95% CI, 0.02 to 0.07; $P = .0002$; **Figure 1, B**) with RA relative to SVG, resulting in a statistically nonsignificant reduction in "graft failure" ("total occlusion" plus "string sign," random-effects RD, -0.05; 95% CI, -0.13 to 0.02; $P = .16$; **Figure 1, C**). Sensitivity analyses were performed to assess the contribution of each study to the pooled estimate by excluding individual trials one at a time and recalculating the pooled RD estimates for the remaining studies. Exclusion of any single trial from the analysis of "total occlusion" did not substantively alter the overall result of our analysis. Although elimination of any single trial except for the Radial Artery Patency Study (RAPS)⁴ from the analysis of "string sign" did not substantially change the pooled estimate, exclusion of the RAPS, which included the largest number of grafts, demonstrated a statistically nonsignificant increase in "string sign" (random-effects RD, 0.02; 95% CI, -0.02 to 0.05; $P = .30$) with RA relative to SVG. Although elimination of any single trial except for the RAPS⁴ from the analysis of "graft failure" ("total occlusion" plus "string sign") did not substantially change the pooled estimate, exclusion of the RAPS demonstrated a statistically significant reduction in "graft failure" (random-effects RD, -0.09; 95% CI, -0.17 to 0.00; $P = .04$) with the RA relative to SVG.

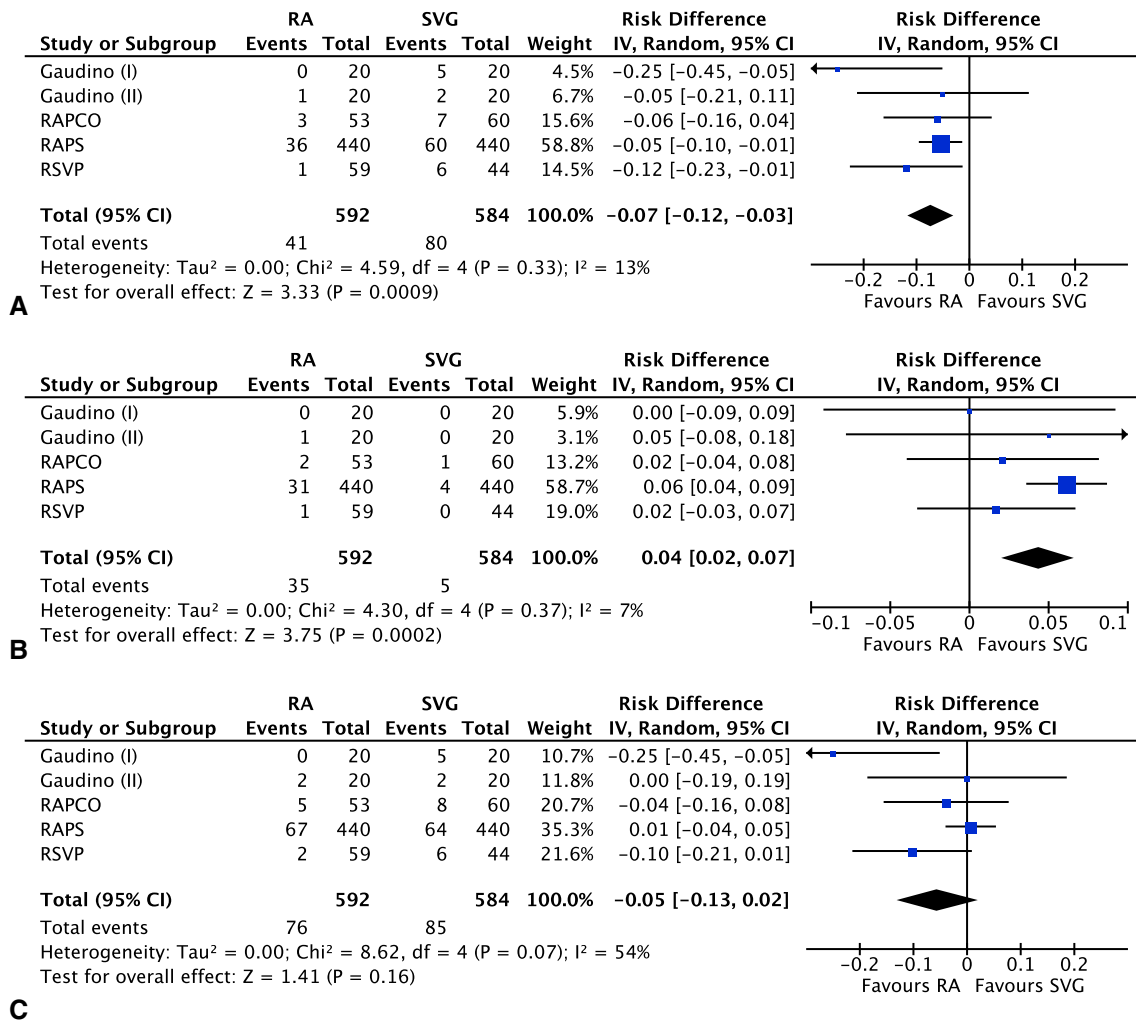


FIGURE 1. Risk differences for rates of “total occlusion” (A), “string sign” (B), and “graft failure” (“total occlusion” plus “string sign”) (C) of radial artery (RA) versus saphenous vein graft (SVG). IV, Inverse variance; CI, confidence interval; Gaudio (I) and Gaudio (II), failed (I) and patent (II) coronary stent groups in trial of Gaudio and associates⁵; RAPCO, Radial Artery Patency and Clinical Outcomes trial²; RAPS, Radial Artery Patency Study⁴; RSVP, Radial Artery Versus Saphenous Vein Patency trial.⁶

Our analysis suggests that the RA reduces “total occlusion” but increases “string sign” relative to the SVG in coronary artery bypass grafting. There is no superiority of the RA relative to the SVG in terms of “graft failure” (“total occlusion” plus “string sign”). Sensitivity analyses, however, reveal that our results are influenced by the results of the RAPS,⁴ the largest trial.

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