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Letter to the Editor

Meta-analysis and commentary: Preemptive correction of arteriovenous access stenosis

To the Editor,

A recent meta-analysis by Ravani et al.[1] studied the effect of preemptive correction of arteriovenous dialysis vascular access vs. deferred care on the risk of access loss, based on data from 14 trials. The authors reported a nonsignificant protective treatment effect of preemptive correction on access loss, while showing a significant protective effect on thrombosis rates conferred by preemptive correction. In order to understand the results better, we revisit all steps of the analysis. First, we repeated the data extraction from all publications[2–11] referenced by Ravani et al.[1] and identified an obvious data extraction error pertaining the count of access losses in the control group from the paper by Mayer et al.[4] Second, using the rectified data we repeated the meta-analyses with access loss as the outcome for studies that recruited patients with arteriovenous fistulae (AVF) and grafts (AVG), respectively, using a random effects model with relative risk (RR) and risk difference (RD) of access loss as the outcomes of interest.

This analysis revealed—contrary to the findings reported in the manuscript in question–a significant positive effect of preemptive correction on arteriovenous access loss in the overall study population [RR 0.80 (95% CI 0.64–0.99), RD −0.07 (95% CI −0.12 to −0.02); Figure 1]. Whereas the data do not conclusively show a benefit of preemptive correction for AVG (RR = 0.87, 95% CI: 0.69–1.11), they show a significant protective effect for AVF (RR = 0.5, 95% CI: 0.29–0.86).

The findings corroborate clinical observations such as superior long-term patency of AVF and the nature of AVG failure that often involve infectious causes.

In conclusion, while showing a nonsignificant trend, the available data indicate no significant protective benefit of preemptive correction in the case of AVG, but clearly supports preemptive intervention for AVF.

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The results presented in this Research Letter have not been submitted anywhere else, but in abstract form to the American Society of Nephrology's Renal Week 2017. A detailed analysis also discussing the problem of heterogeneity in this meta-analysis can be found on http://dx.doi.org/10.1101/179580.

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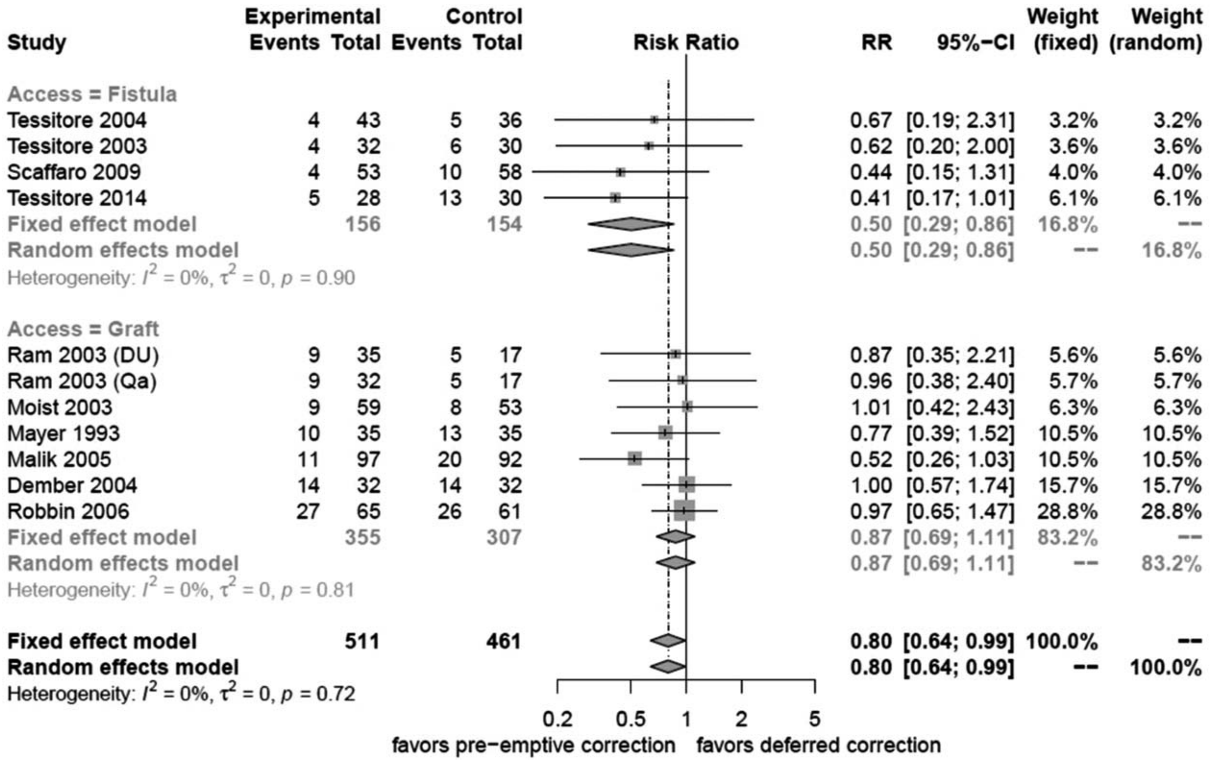

Figure 1 Meta-analysis of arteriovenous access loss, overall and by access type using risk ratio as the measure of association.

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If interested, the full text article this commentary refers to is available via the below link:

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