

LETTERS TO THE EDITOR

Regarding "Meta-analysis of femoropopliteal bypass grafts for lower extremity arterial insufficiency"

According to a recent meta-analysis of uncontrolled series by Pereira et al (J Vasc Surg 2006;44:510-7), saphenous vein grafts performed better than polytetrafluoroethylene (PTFE) grafts in above-knee femoropopliteal bypass. The best evidence that a treatment surpasses another, however, should come from a meta-analysis of randomized controlled trials (RCTs). When only RCTs in a systematic review of above-knee femoropopliteal bypass by Klinkert et al¹ (published in 2004) were considered, the patency of saphenous vein grafts was better than that for PTFE grafts. The analysis included four RCTs by Veith et al,² AbuRahma et al,³ Johnson and Lee,⁴ and Burger et al.⁵ After the inclusion period (from 1966 to 2002) of the review by Klinkert et al,¹ to our knowledge, Klinkert et al⁶ updated the 2-year outcomes of the RCT by Burger et al,⁵ and Ballotta et al⁷ reported the results of another RCT. Although a bypass with saphenous vein grafts had better patency in the RCT by Klinkert et al,⁶ saphenous vein and PTFE grafts had a statistically comparable patency in the RCT by Ballotta et al.⁷ To test the hypothesis that saphenous vein and PTFE grafts are equally beneficial in above-knee femoropopliteal bypass, we performed a meta-analysis of currently available RCTs of saphenous vein vs PTFE grafts in above-knee femoropopliteal bypass.

Our comprehensive search identified 5 RCTs²⁻⁶ that included 395 saphenous vein and 435 PTFE grafts. We analyzed the primary patency of three RCTs^{2,3,5} and the primary assisted patency of two RCTs^{4,6} because these two RCTs did not report primary patency. The pooled primary graft patency of saphenous vein and PTFE grafts was 86.6% and 83.7% at 1 year, 82.6% and 74.6% at 2 years, 79.2% and 65.3% at 3 years, 77.6% and 61.3% at 4 years, and 76.4% and 56.1% at 5 years, respectively (Fig). Risk ratios (<1, favors PTFE grafts; >1, favors saphenous vein grafts) for graft occlusion pooled by using a random-effects model were 1.13 (confidence interval, 0.85-1.52; $P = .3957$) at 1 year, 1.34 (confidence interval, 1.05-1.70; $P = .0198$) at 2 years, 1.44 (confidence interval, 1.16-1.80; $P = .0011$) at 3 years, 1.52 (confidence interval, 1.23-1.87; $P < .0001$) at 4 years, and 1.68 (confidence interval, 1.34-2.11; $P < .0001$) at 5 years. There was neither between-study heterogeneity nor publication bias.

The best evidence on the basis of the present meta-analysis of RCTs demonstrated that saphenous vein grafts were superior to PTFE grafts in above-knee femoropopliteal bypass, thus supporting the conclusions of the meta-analysis of uncontrolled series by Pereira et al.

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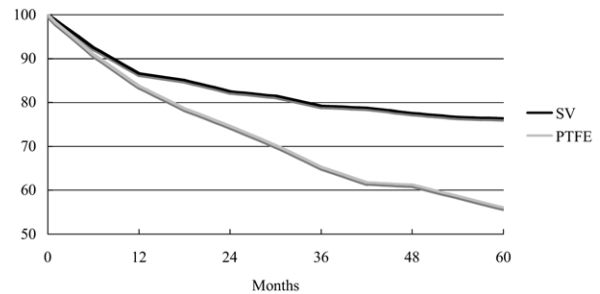


Fig. Meta-analysis of primary patency for above-knee femoropopliteal saphenous vein (SV; black line) and polytetrafluoroethylene (PTFE; gray line) bypass grafts.

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Reply

We agree with Dr Takagi that a meta-analysis of randomized controlled trials provides the best scientific evidence. However, they are scarce in the literature.

Meta-analysis of uncontrolled surgical series may give a reliable account of available data because these series are frequent in the literature and often involve a larger number of patients. The larger numbers of series and patients pooled in our study made it possible to separate them according to grades of ischemia of the limb (meta-analysis I and II) and primary and secondary patencies with at least 10 series in each group. The division according to grades of limb ischemia allowed us to observe that the difference between saphenous vein and PTFE patency rates were even greater in patients with critical ischemia.

Conversely, Takagi's article polled only three and two studies, respectively, for primary and secondary patency rates. Anyway, we are glad his group achieved the same results as we did.

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