

carotid artery stenosis, and abdominal aortic aneurysm was 3.7%, 3.9%, and 0.9%, respectively. Prevalence of vascular disease increased with age (40-50 years: 2%, 51-60 years: 3.5%, 61-70 years: 7.1%, 71-80 years: 13.0%, 81-90 years: 22.3%, 91-100 years: 32.5%; $P < .0001$). The prevalence of vascular disease in each vascular territory also increased with age. After adjustment for sex, race-ethnicity, body mass index, family history of cardiovascular disease, smoking, diabetes, hypertension, hypercholesterolemia, and exercise, the odds of PAD (odds ratio [OR], 2.14; 95% confidence interval [CI], 2.12-2.15), carotid artery stenosis (OR, 1.8; 95% CI, 1.79-1.81), and abdominal aortic aneurysm (OR, 2.33; 95% CI, 2.30-2.36) increased with each decade of life.

Comment: Age is a well-known risk factor for atherosclerosis. The data here, if anything, are likely to underestimate the prevalence of vascular disease. Patients who present for screening studies, the so-called worried well, may be more health oriented and live healthier lifestyles than those who do not. After all, patients known to have vascular disease are not really candidates for "screening" studies and, theoretically, would not be included in the database. It seems they would be unlikely to pay for an examination to confirm what they already know.

Fistula First Is Not Always the Best Strategy for the Elderly

DeSilva RN, Patibandla BK, Vin Y, et al. *J Am Soc Nephrol* 2013;24:1297-304.

Conclusions: Fistula first is not clearly superior to graft first in very elderly patients. Each strategy is associated with similar mortality outcomes in octogenarians and nonagenarians.

Summary: In patients requiring hemodialysis, one-third of fistulas fail to mature (Allon M et al. *Kidney Int* 2002;62:1109-24). In addition, patients aged >65 years have twice the failure rate of younger patients (Lok CE et al. *J Am Soc Nephrol* 2006;17:3204-12). A higher rate of fistulas that fail to mature may contribute to greater use of catheters. Indeed, from the mid-1990s until recently, incident use of arteriovenous (AV) grafts in elderly patients decreased from 28.2% to 4.2%, but at the same time, incident catheter use increased from 56.8% to 82.3% (DeSilva RN et al. *Hemodial Int* 2012;16:233-41; and Lacson E Jr et al. *Am J Kidney Dis* 2009;54:912-21). Along with this, it is noted that the incident hemodialysis population is aging, with an annual increase of 8% to 16% in patients aged >75 years. In this paper, the authors sought to determine mortality rates in the elderly population according to the initial type of vascular access placed rather than the access used at initiation of hemodialysis. The specific question was whether fistula first, as an intention-to-treat strategy might not be the clearly superior predialysis vascular access placement strategy in octogenarians. The paper analyzed data from a cohort of 115,425 incident hemodialysis patients who were aged ≥ 65 years. Data were derived from the US Renal Data System with linked Medicare claims. This allowed identification of the first predialysis vascular access placed rather than just the first access used for hemodialysis. All-cause mortality outcomes based on the first vascular access placed were evaluated using proportional hazard models. The fistula group was the reference. In the study population, 21,436 patients had fistulas as the first predialysis access placed, 3472 had grafts as the first predialysis access, and 90,517 had catheters as the first predialysis access. Patients with catheters as their first predialysis access demonstrated inferior survival compared with patients with a fistula (hazard ratio [HR], 1.77; 95% confidence interval [CI], 1.73-1.81; $P < .001$). There was no significant difference in mortality between patients with a graft as the first access placed and those with a fistula as the initial access (HR, 1.05; 95% CI, 1.00-1.11; $P = .06$). Patients with grafts as their first predialysis access had inferior mortality outcomes compared with fistulas for the group aged 67 to ≤ 79 years (HR, 1.10; 95% CI, 1.02-1.17; $P = .007$). However, differences between graft-first and fistula-first groups were not statistically significant for the groups aged 80 to ≤ 89 years those aged >90 years. Overall, only 50.7% of elderly patients with an AV fistula placed first used an AV fistula at the time of hemodialysis initiation. A higher percentage of those patients within the AV fistula-first group used catheters at dialysis initiation compared with the AV graft-first group (43% vs 25%).

Comment: It is becoming increasingly evident that a fistula-first strategy as a blanket strategy may not be appropriate for all patients approaching hemodialysis. The authors' data argue strongly for the fact that perhaps what is more important is avoiding a catheter in the elderly patient rather than whether hemodialysis is initiated with a fistula or a graft. The observational data here suggest placing an AV graft first decreases the chance of initiating hemodialysis with a catheter compared with a fistula-first strategy. The clinical implication is that a fistula-first strategy should be used in elderly patients who have a high chance for a successful fistula but that the remainder of patients should be considered for a graft to initiate hemodialysis.

Systematic Review and Meta-Analysis of Additional Technologies To Enhance Angioplasty for Infragauginal Peripheral Arterial Occlusive Disease

Simpson EL, Michaels JA, Thomas SM, et al. *Br J Surg* 2013;100:1128-37.

Conclusions: Among technologies available to enhance conventional percutaneous transluminal balloon angioplasty (PTA), self-expanding stents, drug-eluting stents, and drug-coated balloons appear to be the most promising technologies for future study.

Summary: There are a number of modifications of balloon angioplasty aimed at improving success of the initial recanalization and prevention of late restenosis in the percutaneous treatment of infragauginal peripheral arterial occlusive disease. These technologies include stents, laser angioplasty, arthroectomy devices, drug-eluting stents, drug-coated balloons, endovascular radiotherapy, and brachytherapy. This review is part of a larger project looking at enhancements to angioplasty (Simpson EL et al. <http://www.hta.ac.uk/project/2324.asp>). The purpose of the review was to evaluate the range of available additional technologies to enhance results of infragauginal PTA. The authors searched relevant electronic databases in May 2011. The patient population studied was those with symptomatic peripheral arterial occlusive disease undergoing endovascular treatment for disease distal to the inguinal ligament. Interventions were additional techniques compared with conventional PTA. Need for reintervention and restenosis were the main outcome measures. Randomized clinical trials were assessed for quality, and data were extracted to determine clinical effectiveness. Where appropriate, meta-analysis was undertaken to produce risk ratios (RRs). There were 40 randomized clinical trials selected. Meta-analysis showed a significant benefit at 6 months in reducing restenosis for self-expanding stents (RR, 0.49) and drug-coated balloons (RR, 0.40) and at 12 months for endovascular brachytherapy (RR, 0.63). Stent grafts also significantly reduced restenosis compared with PTA, as did drug-eluting stents compared with bare-metal stents. The meta-analysis showed drug-coated balloons were associated with lower reintervention rates than PTA alone at 6 months (RR, 0.24) and at 24 months (RR, 0.27). Self-expanding stents at 6 months also appeared to result in lower reintervention rates. Other techniques did not show significant treatment effects for restenosis or reintervention.

Comment: It seems that every few months there is a new "wonder technique" to reduce restenosis and reintervention in patients undergoing percutaneous treatment of infragauginal arteries. Although the conclusions of this review must be tempered by small sample sizes and, frequently, by lack of clinical outcome measures permitting direct comparison between trials, it does appear not all adjuncts to balloon angioplasty are equal. Because there are limited resources available for study of these adjuncts, the value of this review is to identify those adjuncts most likely to have benefit when studied with respect to patient-oriented outcomes such as measures of quality of life, reintervention, and symptomatic recurrence.

Myocardial Injury After Noncardiac Surgery and its Association With Short-Term Mortality

van Waes JAR, Nathoe HM, de Graaff JC, et al; and the Cardiac Health After Surgery (CHASE) Investigators. *Circulation* 2013;127:2264-71.

Conclusions: Postoperative myocardial injury is an independent predictor of 30-day mortality after noncardiac surgery.

Summary: In high-risk surgical patients, isolated troponin elevations are strong independent predictors of mortality within the first year after surgery (Levy M et al. *Anesthesiology* 2001;114:796-806). The VISION study (Vascular Events in Noncardiac Surgery Patients Cohort Evaluation) included >15,000 surgical patients and showed a strong association between peak troponin levels postoperatively and 30-day mortality (Devereaux PJ et al. *JAMA* 2012;307:2295-304). On the basis of the VISION study, it has been suggested that routine postoperative troponin monitoring could be implemented as standard of care in appropriate patients undergoing noncardiac surgery to provide better risk stratification and long-term patient management. The authors therefore sought to determine the predictive value of postoperative troponin elevation with respect to 30-day mortality after noncardiac surgery. This was an observational single-center cohort study of 2232 noncardiac surgical patients considered intermediate-risk to high-risk. Patients were aged ≥ 60 years and underwent surgery in 2011. Troponin was measured for the first 3 postoperative days. The association between postoperative myocardial injury (troponin I level >0.06 $\mu\text{g/L}$) and all-cause 30-day mortality was determined using log binomial regression analysis. Of the 1627 patients in whom troponin was measured, 315 (19%) had myocardial injury as indicated by an elevated troponin I level. All-cause death occurred in 56 patients (3%). The relative risk of a minor increase in troponin (0.07-0.59 $\mu\text{g/L}$) was 2.4 (95% confidence interval, 1.3-4.2; $P < .01$). The relative risk of a 10- to 100-fold