JOURNAL WATCH

Our panel of experts highlight the most important research articles across the spectrum of topics relevant to *Clinical Practice*

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Klassen BT, Ahlskog JE. Normal pressure hydrocephalus: how often does the diagnosis hold water? *Neurology* 77(12), 1119–1125 (2011).

This chart review study represents the first community-based survey of normal pressure hydrocephalus treatment results published with a follow-up of at least 3 years. The study evaluated all citizens of Olmsted County (MN, USA), where the Mayo Clinic is the only provider of neurosurgical services, from 1995 to 2003. The authors noted that Olmsted doctors had a "high level of vigilance" for this diagnosis. The important numbers to take away from this review are: of the 38 who had high volume lumbar puncture 14 had gait improvement and 13 were shunted, for a yearly rate of 4.82 out of 100,000 in those over 50 years of age; the mean age at shunting was 78.5 years; nine out of 12 with a 3 to 6 month follow-up had definite gait improvement, dropping to six out of 12 at 1 year and four out of 12 at year 3. Adverse events affected 33%, including death, seizures and subdural hematoma. This paper did not review technical issues related to shunting, and one can wonder if technical advances in valves or use of lumbar drainage may have produced fewer side effects or improved outcomes. Normal pressure hydrocephalus should be considered a rare diagnosis without a favorable benefit to risk ratio for its treatment.

– By Joseph H Friedman

Foley FN, Gilbertson DT, Murray T et al. Long interdialytic interval and mortality among patients receiving hemodialysis. *N. Engl. J. Med.* 365(12), 1099–1107 (2011).

In this study, the investigators compared rates of death and cardiovascular-related hospital admissions on the day after the long (2-day) interdialytic interval with rates on other days in 32,065 participants in the End-Stage Renal Disease Clinical Performance Measures Project, a nationally representative sample of patients from the USA receiving hemodialysis three-times weekly, from 2004 through to 2007. Over a mean follow-up interval of 2.2 years, all-cause mortality, mortality from cardiac causes, infections, cardiac arrest, myocardial infarction and admissions for myocardial infarction, congestive heart failure, stroke, dysrhythmia and any cardiovascular event were higher on the day after the long interval than on other days. The authors concluded that the long interdialytic interval is associated with a high event rate.

– By Adam Whaley-Connell and Preethi Yerram

Granger CB, Alexander JH, McMurray JJ et al. Apixaban versus warfarin in patients with atrial fibrillation. *N. Engl. J. Med.* 365(11), 981–992 (2011).

The Aristotle Trial compared safety and efficacy of the oral direct factor Xa inhibitor apixaban (5 mg twice daily) with warfarin

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(goal international normalized ratio 2–3) in over 18,000 patients with nonvalvular atrial fibrillation and at least one other risk factor for stroke in a double blind, randomized, placebo controlled trial. After a median follow-up of 1.8 years, apixaban was associated with a 21% ($p < 0.05$) reduction in the risk of stroke or systemic embolism (primary end point), a 31% ($p < 0.05$) reduction in bleeding, and an 11% ($p < 0.05$) reduction in all-cause mortality. Notably, however, it did not show a reduction in ischemic stroke. This is the third trial following RELY (using dabigatran) and ROCKET AF (using rivaroxaban) that has shown favorable clinical results for these new agents versus Coumadin as part of the armamentarium for treatment of patients with nonvalvular atrial fibrillation.

– By Ramin Ebrahimi and Dael Geft

Illuminati G, Ricco JB, Caliò F et al. Short-term results of a randomized trial examining timing of carotid endarterectomy in patients with severe asymptomatic unilateral carotid stenosis undergoing coronary artery bypass grafting. *J. Vasc. Surg.* 54(4), 993–999 (2011).

Two of the most commonly performed cardiovascular operations in the world are coronary artery bypass grafting (CABG) and carotid artery endarterectomy (CEA). Each operation individually carries complications, which include perioperative myocardial infarction (MI) and stroke. Unfortunately, there is often a significant overlap between coronary and carotid artery disease. It is estimated that 25% of patients with severe carotid artery disease will have significant carotid artery stenosis.

The treating physician is thus often faced with the dilemma of how to appropriately treat patients with synchronous disease in the carotid and coronary territories. There have been many retrospective studies that have tried to answer this question. These data suggest that if the CEA is performed prior to the CABG, there is a higher MI risk, but lower stroke risk. If the operations are done at the same setting, both stroke and MI are increased. If the CABG is performed first, followed by the CEA, then there is thought to be a lower MI risk at the expense of a higher stroke risk. Thus, the dogma has been to treat the most significant and symptomatic lesion first.

This has recently been challenged in one of the few randomized trials addressing the timing of these operations in a study by Illuminati *et al.* In this trial, patients were selected if they were undergoing elective CABG and had a greater than 70% unilateral carotid stenosis. Patients were excluded if they required complex cardiac operations, had significant ascending/arch atheroma, were off-pump CABG, or were emergent. Ultimately, 185 patients were randomized. Ninety-four patients received a combined operation and 91 received the CABG followed by the CEA.

The results demonstrated equivalent mortality rates (1%). The 90-day stroke rate in the combined operation group was 0% and in the staged CABG followed by carotid artery stenosis 7.7% ($p = 0.008$; number needed to treat to avoid a stroke = 13). Obviously, this is a very selected population of patients and very few patients fell into the third category of CEA followed by CABG within a week (these were analyzed with the combined operative group). Regardless, for asymptomatic patients with severe carotid artery stenosis, this study suggests that we should rethink how we approach our patients. The authors should be congratulated on performing perhaps only the second randomized trial of this nature in the past 30 years and we look forward to a possible paradigm shift in how these cases are managed.

– By Robert S Dieter and Aravinda Nanjundappa

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