News CARDIOLOGY NEWS • May 2005

BY SIDNEY

GOLDSTEIN, M.D.

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HEART OF THE MATTER

Megatrials and the Clinician

an immense effect on the practice of medicine. However, in order to answer the questions posed in such trials, relevant and sufficient patient pop-

ulations and treatments must be identified.

Large RCTs, or megatrials, can identify small differences in populations but tend to exaggerate their significance. Several megatrials have questionable relevance to clinical care.

The recent COMMIT/ CCS-2 study examined the role of early intravenous metoprolol in nearly 46,000 Chinese pa-

tients with Killip class I-III ST-segment-elevation MI (STEMI). But in contrast to U.S. treatment practices, fibrinolysis was common and percutaneous coronary intervention (PCI) was uncommon. In addition, the trial design included intravenous metoprolol for patients with Killip class III with heart failure, a treatment that many U.S. physicians would have been reluctant to give. The data indicated that this reluctance was well founded. Metoprolol caused an increase in death due to shock and heart failure in the Killip class III pa-

andomized clinical trials have had tients, which counterbalanced the decrease in arrhythmic deaths observed in the Killip I and II patients. Overall, there was no benefit associated with intravenous metoprolol in STEMI patients.

The GUSTO I trial, reported in 1993, randomized 41,021 patients with STEMI to compare the benefit of thrombolysis with streptokinase with accelerated tissue plasminogen activator (TPA), both combined with intravenous heparin. The 30day mortality was 7.4% in streptokinase-treated patients and 6.3% in TPA patients. Despite this meager absolute difference of 1.1%

(P = .001) and in the face of increased hemorrhagic strokes in the TPA-treated patients (P = .03), TPA, at a cost 10 times that of streptokinase, became the U.S. standard of therapy, while streptokinase remains the most common thrombolytic therapy in the rest of the world.

The HOPE trial enrolled 9,297 patients to test the benefit of the ACE inhibitor ramipril in patients at a high risk of CAD on the composite end point of ischemic events including death. In 2000, after 5 years of follow-up, the event rates were 17.8% in the placebo

group and 14.0% in the ramipril group (P < .001). These results led to the rapid inclusion of ACE inhibitor therapy in any patients with or at risk of CAD. But meanwhile, another RCT, PEACE, had enrolled 8,290 similar patients to test the benefit of the ACE inhibitor trandolapril in patients who were being treated with β-blockers, statins, and PCI. PEACE reported its findings in 2004 and found no benefit of ACE inhibitors, largely due the more aggressive concomitant therapy, which resulted in a lower placebo event rate. In just a few short years, therapy had changed so rapidly that ACE inhibitors no longer appeared to have an impact on the outcome in patients at risk of ischemic events. In retrospect, HOPE was dated even before it was reported.

RCTs continue to impact on our bedside decisions. These experiences with megatrials, however, give reason to be critical of their importance in the care of our patients. It is best to remember that today's scientific "truths" may be shown to be "false" tomorrow.

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Address Changes Fax change of address (with old mailing label) to 301-816-8736 or e-mail change to subs@elsevier.com

Reprints Call 301-816-8726

POSTMASTER Send changes of address (with old mailing label) to Circulation, CARDIOLOGY NEWS, 12230 Wilkins Ave., Rockville, MD 20852.

CARDIOLOGY NEWS is published monthly by Elsevier Inc., 60 Columbia Rd., Building B, Morristown, NI 07960, 973-290-8200, fax 973-290-8250. ©Copyright 2005, by Elsevier Inc.