Papers that could change practice in cardiovascular research:

7 April 2013 - Newer antiplatelet agents for complications of PCI

Coronary plaque rupture can occur spontaneously as in an acute coronary syndrome, or iatrogenically, as a result of angioplasty or stent implantation. The exposure of the plaque to the blood stimulates thrombus formation and acute occlusion of the coronary artery. Anticoagulants such as heparin or bivalirudin along with aspirin and antagonists of the platelet ADP-receptor reduce the development of the thrombi, and the resulting myocardial infarcts.

A study reported recently in the New England Journal of Medicine, considered the effects of using not the usual oral, but instead an intravenous ADP-receptor antagonist at the start of percutaneous coronary artery interventions (PCI) involving stenting. There are undoubted benefits from effective platelet inhibition at the time of plaque rupture, whether spontaneous or iatrogenic. Prompt oral administration of an ADP–receptor antagonists, with a loading dose, is the current standard of practice.

The CHAMPION PHOENIX study examined a total of 11,145 patients undergoing either elective PCI for stable angina, or emergency PCI for ST elevation MI or unstable angina. It compared a loading dose of IV cangralor, followed by an infusion for the duration of the procedure, then followed by 600 mg of oral clopidogrel, with oral clopidogrel loading (at 600 or 300 mg). Both groups continued on daily 75mg clopidogrel.

The cangralor group did indeed demonstrate a reduction in the composite endpoint of death, myocardial infarct and ischaemia-driven revascularisation, and also stent thrombosis at 48h (4.7% with cangralor and 5.9% with clopidogrel, odds ratio, 0.78) with most of the outcome being the result of fewer MIs, though stent thrombosis was also significantly reduced (0.8% and 1.4%, odds ratio 0.62).

There could be a useful place for rapid and short lasting platelet inhibition at the exact time of PCI, avoiding its unnecessary pre-emptive administration, particularly in patients who are subsequently identified as requiring bypass grafting. However, as pointed out in the accompanying editorial, this study is limited in its usefulness, as it did not compare with the current standards of treatment. Today patients with possible acute coronary syndromes would receive a 600mg clopidogrel loading doses at presentation, and those with acute STEMI would receive prasugrel or ticagrelor, already shown to have better PCI outcomes than clopidogrel. There is no comparative study of cangralor with these newer regimes and so as yet we have insufficient evidence to support a switch to an IV

Bhatt DL, Stone GW, Mahaffey KW, et al. Effect of Platelet Inhibition with Cangrelor during PCI on Ischemic Events. N Engl J Med 2013; 368:1303-1313

Lange RA, Hillis LD. The Duel between Dual Antiplatelet Therapies. N Engl J Med 2013; 368:1356-1357.

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