Important Issues on Primary PCI

가천대학교 길병원 심장내과 강웅철

ORAL ANTIPLATELET THERAPY

The mainstay of antiplatelet therapy for PPCI over the last 10 years has been the use of DAPT, clopidogrel, in combination with aspirin. Given the aggravated inflammatory milieu at the time of STEMI, more rapid onset and potent dual antiplatelet agents have been sought. Prasugrel, a third-generation thienopyridine agent, is readily metabolized into its active metabolite by the intestine, bypassing hepatic metabolism, leading to more consistent pharmacokinetics than clopidogrel. Ticagrelor, a reversible oral P2Y12 receptor antagonist, does not need metabolizing.

VASCULAR ACCESS

With the administration of potent anticoagulation and antiplatelet therapies, arterial access has greater risk of bleeding than routine PCI. These improved with the radial route and were confirmed in a recent meta-analysis of smaller trials.

GLYCOPROTEIN IIB/IIIA INHIBITORS (GPI)

The glycoprotein IIb/IIIIa inhibitors are useful adjuncts during primary PCI particularly when associated with a large thrombus burden. The most potent agent (Abciximab) is well established with a good evidence base in PPCI, but this was before the routine use of thienopyridine agents.

PREVENTION OF SLOW FLOW/NO-REFLOW

No-reflow is a serious complication that can occur following stenting in PPCI particularly when associated with heavy thrombus burden. Several strategies of additional pharmacotherapy, thrombus aspiration and/or direct or deferred stenting may help prevent or treat the no-reflow phenomenon. Drugs that reduce thrombus burden or dilate distal vessels could help reduce the incidence of no-reflow during PPCI. Abciximab (intracoronary or intravenous, equivalent outcomes), verapamil, diltiazem and nitroprusside have all been demonstrated to be effective treatments once no-reflow has occurred. Manual thrombus aspiration catheters use manual suction with a large syringe are relatively simple to use and can be deployed speedily. The single center randomized Thrombus Aspiration during PPCI study (TAPAS) study compared manual thrombus aspiration or stenting alone with an improvement in surrogate primary endpoints of myocardial blush grade and ST resolution in the thrombectomy group at 30 days.

TYPE OF STENT

Currently, the choice of implanting BMS or DES or bioabsorbable stents exists for patients with STEMI. When DES were first introduced, there was concern of increased acute events, but studies demonstrated improved outcome with reduced recurrent ischemia and no safety concerns with use of DES. Mortality benefit with DES has also been shown in retrospective propensity score matched analysis of DES versus BMS for STEMI.

WHAT TO DO WITH NON-CULPRIT VESSEL LESIONS?

Following treatment of the infarct-related artery, questions remain about the most appropriate treatment for significant stenosis in non-culprit vessels. Broadly speaking, three strategies exist: (1) medical therapy with revascularization only with the development of symptoms or evidence of inducible ischemia, (2) multivessel PCI to non-culprit vessels during PPCI or (3) staged PCI to non-culprit vessels at a later date regardless of symptoms.

CONCLUSIONS

It has been about a decade since the widespread establishment of PPCI as the treatment of choice for STEMI in some countries. Despite reduced risk of thrombotic occlusion with oral antiplatelet drugs, anticoagulants and potent intravenous antiplatelet inhibitors with associated risk of bleeding, novel agents to improve this are under clinical evaluation. The process of stent deployment remains most important with superiority of radial access but need for selecting appropriate use of manual thrombectomy and PCI to non-culprit vessels in selected patients. Robust governance processes are essential for any PPCI program to ensure ongoing best practice with good strategies available to reduce total ischemic time and improve patient outcome.