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Drug eluting balloon vs drug eluting stent in PCI: insights from a meta-analysis of 1462 patients.

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Background: Drug eluting balloons (DEB) have been developed to overcome the limitations of drug eluting stent (DES), but clinical results of different studies about DEB are still not consistent. Thus, we performed a meta-analysis to compare outcomes of DEB and DES in coronary artery disease (CAD).

Methods: Medline/Web databases were searched for studies comparing DEB and DES for obstructive CAD, reporting late lumen loss (LLL) and rates for overall mortality, myocardial infarction (MI), stent thrombosis (ST) and target lesion revascularization (TLR).

Results: Eight studies (1462 patients) were included in the meta-analysis. Compared with DES, DEB treated patients showed non-significantly higher LLL ([WMD] 0.70 mm; mean difference 0.32 mm [0.22-0.42], P<0.001) and MI (0.67 [0.33-0.99], P=0.007) and STLR rates (OR 1.19[0.60-2.38], P=0.61) were similar between the 2 treatments. A pre-specified meta-regression analysis showed that LLL WMD and TLR OR were inversely correlated to the prevalence of diabetes (P<0.0001) and directly correlated to reference coronary diameters (P<0.001).

Conclusions: The present meta-analysis showed that, in comparison with DES, DEB use was not followed by significantly higher LLL, with similar clinical efficacy and safety. Thus DEB could be considered a reasonable alternative for interventional cardiologists to limit the use of DES in selected clinical settings.

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Risk of Thrombocytopenia with Glycoprotein IIb/IIIa Inhibitors Across Drugs and Patient Populations: A Meta-analysis of 28 Large Placebo-Controlled Randomized Trials

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Background: Thrombocytopenia (tcp) is associated with poor clinical outcomes in patients receiving glycoprotein IIb/IIIa inhibitors (GPI), yet the extent of this risk and differences between drugs and patient populations are uncertain. We evaluated the risk of tcp associated with GPI compared to placebo.

Methods: Rate ratios were calculated for tcp (<50,000 platelets/mm3) and severe tcp (<30,000 platelets/mm3) in 28 randomized large trials (>1000 patients) of GPI versus placebo involving a total of 123,419 patients. We used meta-analysis techniques to estimate the summary effect across all trials, in pre-specified subgroups, and in sensitivity analyses to assess the robustness of the data.

Results: GPI use increases the rate of tcp (RR = 1.63, 99%CI 1.48-1.79) and severe tcp (RR = 3.51, 99%CI 2.68-4.8) These findings are consistent by route of administration. Abciximab, tirofiban, eptifibatide, laminitab, and riptafiban demonstrated significantly increased tcp; epftibatide, laminitab and sibrafiban had non-significant increases compared to placebo. Patients with STEMI (RR 2.84, 99%CI 2.23-3.61) and elective PCI (RR 2.78, 99%CI 1.76-4.40) had higher rates of tcp than patients with nSTE-ACS (RR 1.41, 99%CI 1.25-1.58; p<0.001 for heterogeneity by subgroup).

Conclusions: The administration of GPI compared to placebo was associated with a 63% increased risk of tcp (<100,000 platelets/mm3), and >3-fold increased risk of severe tcp (<50,000 platelets/mm3). This corresponds to an average of 10-20 additional cases of tcp per 1000 patients given GPIs, of which are 6-7 are severe.