A Propensity Score Matched Comparative Analysis of Major Clinical Outcomes Using Drug-Eluting Stents Versus Bare Metal Stents in a Large Single Center Clinical Setting

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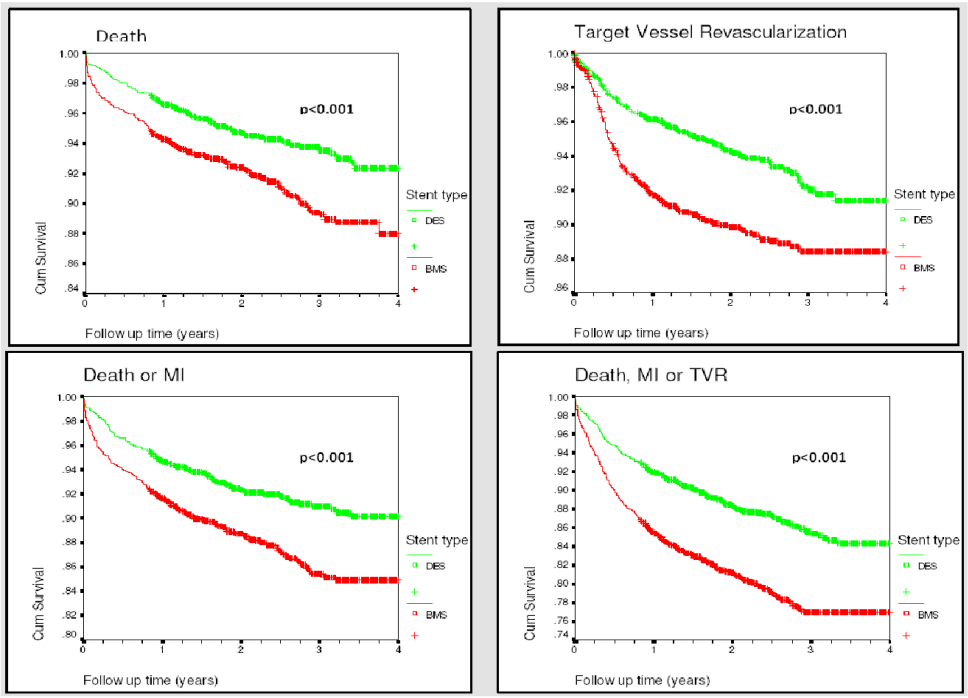
Background: Concerns have been raised about the long-term safety of drug eluting stents (DES) during routine clinical practice among large population cohorts.
Methods: We identified a consecutive cohort of 4700 patients undergoing PCI at our institution between 1/4/2004 and 30/6/2007. We compared total mortality, myocardial infarction (MI), repeat target vessel revascularization (TVR) rates and event-free survival in 3474 propensity score matched patients, of whom 1737 were treated using drug eluting stents (DES group) and 1737 were treated using bare metal stents (BMS group). Follow up time was 9 months to 4 years (mean and median 2.44 years). Propensity score matching balanced well all pre-PCI variables (age, gender, diabetes mellitus, hypertension, prior heart failure, known moderate to severe LV dysfunction, smoking, renal failure, prior CABG, PCI for ST elevation MI, PCI for MI or ACS, severe state, number of vessel disease).
Results: The salient features of the DES group were the use of longer or more stents, treatment of more lesions and of more proximal main vessels. The cumulative mortality was 7.66% in the DES group vs. 12.01% in the BMS group ($p<0.001$). Use of DES reduced the occurrence of MI (3.57% vs.5.2% $p=0.02$), of clinically driven TVR (8.58% vs. 11.58%, $p<0.001$) and of the composite endpoint of death/MI/TVR (15.66% vs. 23.08%; $p<0.001$), as shown in the figures.

Figures: Kaplan-Meier survival plots of the propensity score matched cohort



Conclusions: Our risk-adjusted, propensity score matched event-free survival analysis would indicate a *prognostic advantage* for DES utilization at our institution which sustains to 4 years following PCI.