The JETSTENT trial demonstrated benefit for RT use in patients with STEMI. This strategy is associated with higher rates of early ST-segment resolution and improved clinical outcomes at 6 months. These improvements occurred without any apparent increase in stroke or major bleeding. Further evaluation is required to confirm the long-term safety and efficacy of this strategy.

Long-Term Results of the DEDICATION Trial Favor the Use of DES Over BMS

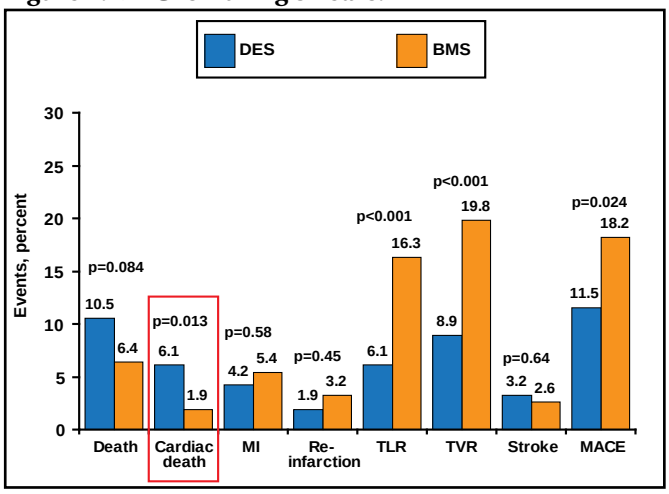
According to long-term follow-up results from the Drug Elution and Distal Protection During Percutaneous Coronary Intervention in ST-Elevation Myocardial Infarction (DEDICATION; NCT00192868) trial, drug-eluting stents (DES) reduced the rate of major adverse cardiac events (MACEs) and were not associated with an increased rate of myocardial infarction (MI) or stent thrombosis compared with bare-metal stents (BMS). However, an increased incidence of cardiac death was observed in the DES group. Three-year data from the DEDICATION study was presented by Peter Clemmensen, MD, PhD, Copenhagen University Hospital, Copenhagen, Denmark.

Thus far, DES have demonstrated favorable results with regard to safety and efficacy compared with BMS in patients with coronary artery disease, particularly among those with stable conditions. However, there is limited long-term data available regarding DES use in patients with ST-elevation myocardial infarction (STEMI) who have undergone percutaneous coronary intervention (PCI). Early results from DEDICATION favored DES, but higher mortality rates were associated with DES at 8 months (overall mortality 5.1% for DES vs 2.6% for BMS at 8 months; p=0.14). Therefore, long-term evaluation was warranted in order to confirm the impact of DES on mortality and MACE rates over time.

The 3-year follow-up included 573 patients from the DEDICATION trial who presented with signs and symptoms of a first-time large STEMI, chest pain ≤12 hours duration, and ST-elevation >4 mm in contiguous leads and had high-grade stenosis/occlusion of a native coronary artery that could be crossed with a guidewire. Patients with a history of MI, left main stem stenosis, recent gastrointestinal bleeding (≤1 month), comorbidities with expected survival of <1 year, and linguistic difficulties that required the use of an interpreter were excluded from study participation. Patients were well matched at baseline, and ~65% of patients in both groups had one vessel disease and Thrombolysis in Myocardial Infarction (TIMI) flow grade 0 to 1 at baseline.

The endpoints were MACEs (defined as a composite of cardiac death, reinfarction, and total lesion revascularization), cardiac death, total mortality, MI, total lesion revascularization (TLR), total vessel revascularization (TVR), and stroke at 3 years. Overall, MACEs were less frequent in the DES group (11.5%) than in the BMS group (18.2%) at 3 years (p=0.024). However, the rate of cardiac death (6.1% vs 1.9% for BMS) and all-cause death (10.5% vs 6.4% for BMS) was higher in the DES group. The rates of TLR and TVR were significantly lower for DES compared with BMS (p<0.001 for both). There was no significant difference in the rates of MI or reinfarction between the two groups at 3 years (Figure 1).

Figure 1. MACEs During 3 Years.



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It is important to note that the incidence of stroke was similar between the two groups at 3 years. Though the general theory has been that DES lead to more stent thromboses, this was not the case in the DEDICATION trial, Prof. Clemmensen concluded. DES effectively reduced the rate of MACEs and the need for repeat revascularization in STEMI patients without associated increases in the incidence of MI or stent thrombosis. The increased risk of cardiac death that was associated with DES merits further investigation and should be considered before choosing a treatment strategy.

Long-Term Follow-Up of the PASSION Trial

Rates of cardiac death, myocardial infarction (MI), or target lesion revascularization (TLR) in patients with acute ST-elevation MI (STEMI) who were treated with paclitaxel-eluting stents (PES) were similar in those who were treated with bare-metal stents (BMS) at 5 years. However, there was a trend toward a higher rate of late stent thrombosis

(30 days to 5 years) after treatment with PES. Maarten A. Vink, MD, OLVG Hospital, Amsterdam, The Netherlands, presented findings from the 5-year clinical follow-up of the PASSION (Paclitaxel-Eluting Stent versus Bare-Metal Stent in Acute ST-Elevation Myocardial Infarction) Trial.

Many current guidelines do not consistently support the use of DES in primary percutaneous coronary intervention (PCI) for STEMI due to the lack of long-term outcome trial data. The prospective, randomized, single-blind PASSION trial set out to address the concern of late and very late stent thrombosis that is related to DES use over a 5-year follow-up period. It is the first large-scale randomized study that compared PES with BMS in an exclusively STEMI population.

PASSION included 619 consecutive patients with STEMI who were eligible for primary PCI with stenting. In the interest of focusing on a real-world population, trial exclusion was limited to cardiogenic shock prior to randomization, failed fibrinolysis, expected mortality of <6 months, and mechanical ventilation at presentation. Clinical follow-up occurred at 6, 12, 24, and 60 months. Routine angiographic follow-up was not performed. Patients were randomized to receive either PES (n=310) or BMS (n=309), and all patients received concomitant clopidogrel (300-mg loading dose followed by 75 mg daily for ≥6 months) and aspirin (100- to 500-mgmg loading dose followed by 80 to 100 mg daily indefinitely) postprocedure. GP IIb/IIIa receptor blockers were administered at the discretion of the treating physician, as were thrombus aspiration and direct stenting. The groups were well matched at baseline. The mean age was 61 years, and follow-up of all patients was obtained at 5 years.

The primary endpoint was the composite of death, reinfarction, or TLR (within 5 mm of stent edges) at 5 years. The secondary endpoints included major adverse cardiac events (MACE) at 5 years, individual components of MACE, and stent thrombosis. There was no significant difference in the occurrence of the composite primary endpoint at 5 years, nor was there any difference in the individual components (cardiac death, recurrent MI, or TLR) of the primary endpoint between the two groups. Additionally, there was no significant difference in the occurrence of individual MACE between the two groups. However, there was a slightly higher risk of very late stent thrombosis (1 to 5 years) that was associated with PES (2.5% for PES vs 0.7% for BMS). The rate of definite stent thrombosis at 5 years was 2-fold higher in the PES group (HR, 1.98; 95% CI, 0.67 to 5.79; p=0.20).

Results from the PASSION trial indicate that the long-term risk of cardiac death, MI, or TLR is similar for PES and BMS. The risk of late stent thrombosis is increased slightly with PES, and this risk appears to persist over time. Therefore, clinicians may want to consider the risk versus benefit of PES when choosing a treatment strategy for patients with acute STEMI.

Ticagrelor May Be an Effective Alternative to Clopidogrel in Patients with ACS Who Subsequently Undergo CABG

In patients with acute coronary syndrome (ACS) who are undergoing coronary artery bypass grafting (CABG), treatment with ticagrelor within 7 days prior to surgery is associated with lower rates of mortality after CABG and comparable rates of CABG-related bleeding compared with clopidogrel. The oral, reversibly binding $P2Y_{12}$ antagonist ticagrelor provides greater inhibition of platelet aggregation and a faster offset than clopidogrel, which is an irreversible platelet inhibitor. Findings from a retrospective analysis of the nonrandomized subgroup of patients who required CABG (n=1261) within 7 days of last intake of study drug from the Platelet Inhibition and Patient Outcomes (PLATO; NCT00391872) study, comparing ticagrelor and clopidogrel, were presented by Claes Held, MD, PhD, Uppsala Clinical Research Center, Uppsala, Sweden.

Current ACS guidelines recommend dual antiplatelet therapy with aspirin and clopidogrel for at least 12 months and that clopidogrel be withheld for at least 5 days prior to CABG. However, this is not always possible, as urgent situations may necessitate surgery prior to 5 days after treatment cessation.

The PLATO-CABG analysis included 1261 patients with ACS, of whom 632 were treated with ticagrelor and 629 were treated with clopidogrel. The median age was 64 years, and 81% was male. Approximately 90% of patients underwent coronary angiography at study entry, and approximately 19% underwent percutaneous coronary intervention (PCI) within 24 hours of randomization. The primary efficacy endpoint was the composite of cardiovascular (CV) death, myocardial infraction (MI), or stroke at 12 months post-CABG. The primary safety endpoint was total major bleeding (as defined according to the Global Use of Strategies to Open (GUSTO) occluded coronary arteries guidelines) from time of CABG. The secondary endpoints included the individual components of the primary efficacy endpoint (CV death, MI, and stroke) as well as all-cause mortality and non-CV death.

There was no significant difference between ticagrelor and clopidogrel therapy with regard to the composite primary efficacy endpoint (10.5% vs 12.6%; HR, 0.84; 95% CI 0.60 to 1.16; p=0.29). However, the rate of CV death was significantly lower in the ticagrelor group (4.1% vs