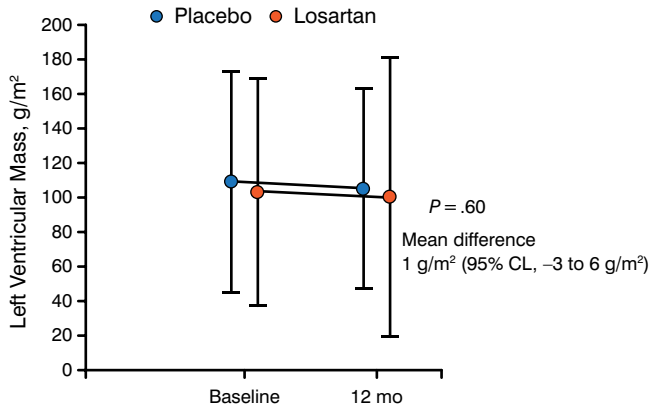
Figure 1. Effect of Losartan on Left Ventricular Mass in Patients With Hypertrophic Cardiomyopathy



95% CL, 95% confidence limit.

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included changes in left ventricular maximal wall thickness, outflow tract gradient, and fibrosis, as well as changes in diastolic function, exercise tolerance, and symptoms of HCM. In the study, 93% of patients were compliant with study medication as determined by pill count.

There was no significant difference in change in left ventricular mass from baseline among patients who received losartan or placebo at 12 months ($P = .60$). Similarly, there was no significant difference in change in maximal ventricular wall thickness, echocardiographic findings such as outflow gradient. In addition, a subgroup analysis demonstrated that there was no benefit with losartan treatment based on age, presence of a genetic mutation causing HCM, left ventricular outflow tract obstruction, maximal wall thickness, or history of myectomy or alcohol septal ablation.

The rate of adverse events (AEs) was similar among the losartan and placebo arms. AEs included sudden cardiac death, angioedema, hyperkalemia, renal impairment, worsening of NYHA functional class, and left ventricular outflow tract gradient. Seven patients discontinued therapy; unspecified symptoms led to discontinuation by 2 patients in the losartan arm and 1 patient in the placebo arm, 1 patient in the losartan arm discontinued treatment because of deterioration of renal function, angioedema caused 1 patient in the losartan arm to discontinue therapy, and 2 patients in the losartan arm were referred for septal reduction therapy and excluded from follow-up. In addition, 2 patients in the placebo arm died from sudden cardiac death.

In conclusion, Dr Axelsson stated that the results from the INHERIT trial indicate that losartan does not provide a benefit for left ventricular mass in patients with HCM; however, losartan treatment was safe and may be used, albeit with caution, for other indications in this population such as for treatment of hypertension.

CABG Plus Valve Repair Provides No Benefit in MR Over CABG Alone

Written by Emma Hitt Nichols, PhD

Coronary artery bypass grafting (CABG) plus mitral valve repair resulted in similar changes in left ventricular reverse modeling and rate of death in patients with multivessel coronary disease and moderate ischemic mitral regurgitation (MR) but was associated with higher rates of serious adverse events (SAEs) when compared to CABG alone. Robert E. Michler, MD, Montefiore-Einstein Heart Center, New York, New York, USA, presented data from the Surgical Interventions for Moderate Ischemic Mitral Regurgitation study [Smith PK et al. *N Engl J Med.* 2014].

About 50% of MR cases are associated with ischemia, 10% of which are moderate in severity. Importantly, ischemic MR is associated with an increased risk of morbidity and mortality [Go AS et al. *Circulation.* 2014]. Surgical treatment options for MR include CABG, with or without mitral valve replacement. The purpose of this study was to determine whether valve repair for moderate ischemic MR at the time of CABG was superior to CABG alone.

In this phase 2 trial, 301 patients with moderate ischemic MR were randomly assigned to undergo CABG alone or CABG plus mitral valve repair with an undersized ring and were followed for 12 months. At baseline, 68% of patients were men; 47% had diabetes mellitus; and the mean age was 64.5 years. The primary end point was the degree of reverse modeling in the left ventricle according to changes in left ventricular end systolic volume index. Secondary end points included major adverse cardiac and cerebrovascular events (MACCEs), mortality, residual MR, hospitalization, quality of life, and other SAEs.

There was no significant difference in change in left ventricular end systolic volume index in patients who underwent CABG alone or CABG with mitral valve repair at 12 months ($P = .61$). In addition, the mortality rate was similar between arms, with 30-day mortality occurring in 2.7% and 1.3% of patients who underwent CABG or CABG plus valve repair, respectively ($P = .68$), and with 12-month mortality occurring in 7.3% and 6.7%, respectively ($P = .81$). Similarly, the rate of MACCEs was similar between arms at 12 months. Patients who had CABG plus valve repair experienced a greater reduction in severity of MR when compared with patients who had CABG alone.

However, patients who underwent CABG plus valve repair required greater rates of aortic cross clamp, cardiopulmonary bypass, and intensive care unit stay time versus those who underwent CABG only. In addition, postoperative low-output syndrome occurred more frequently in patients who received mitral valve repair. Other SAEs that occurred more frequently in patients who underwent CABG plus valve repair included neurologic events and supraventricular arrhythmia ($P = .03$ for both). At the end of the study, quality of life, NYHA functional class, and rate of death were similar between arms.

In conclusion, Dr Michler stated that data from this trial suggest no clinical advantage to performing a mitral valve repair in patients with moderate ischemic MR who are undergoing CABG. However, long-term follow-up is ongoing. In addition, Dr Michler commented that a limitation of this study was that the primary end point was not a clinical end point. However, the more appropriate end point of mortality would require a much larger study population and a longer follow-up time, he stated.

BASKET-PROVE II: BP-DES Noninferior to DP-DES

Written by Brian Hoyle

Christoph A. Kaiser, MD, University Hospital Basel, Basel, Switzerland, discussed the main results of the randomized BASKET Prospective Validation Examination II trial [BASKET-PROVE II; Kaiser C et al. *Circulation*. 2014], which compared the long-term outcome of biodegradable-polymer drug-eluting stents (BP-DEs) to both durable-polymer drug-eluting stents (DP-DESs) and bare metal stents (BMSs).

In BASKET-PROVE II, 2291 patients requiring ≥3.0-mm stents were randomized between April 2010 to May 2012 in a 1:1:1 fashion to either a biolimus-eluting BP-DES (Nobori; n = 765), an everolimus-eluting DP-DES (Xience-PRIME; n = 765), or a thin-strut coated cobalt-chromium BMS (Prokinetik; n = 761). Patients with shock, in-stent restenosis, stent thrombosis (ST), unprotected left main or saphenous vein graft, planned surgery within 12 months, increased bleeding risk due to oral anticoagulant, and history of stroke or transient ischemic attack and who required stents > 4 mm in diameter were excluded.

The noninferiority margin for the BP-DES versus DP-DES comparison was 3.8%, based on prior findings [Kaiser C et al. *N Engl J Med.* 2010]. The primary efficacy end point during the 2-year follow-up after stent implantation was the occurrence of major adverse cardiac events (defined as cardiovascular [CV] death, myocardial infarction [MI], or target vessel revascularization). A superiority analysis was planned between the BP-DES and BMS using a secondary safety end point of CV death, MI, or definite/probable ST.

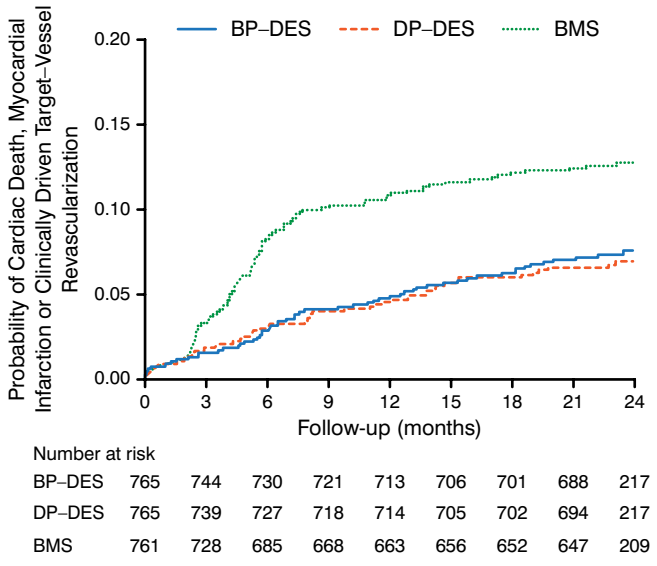
Baseline characteristics were comparable in the 3 trial arms. At 2-year follow-up, 98.5% of patients were alive and 97.7% of patients remained in follow-up. The primary end point was comparable in patients receiving BP-DES and those receiving DP-DES (2-year rate, 7.6% vs 6.8%; absolute risk difference, 0.75%; 95% CI, –1.93% to 3.50%; $P_{\text{Noninferiority}} = .04$; HR, 1.11; 95% CI, 0.77 to 1.62; $P = .58$; Figure 1).

The results were consistent in the per-protocol population although it did not meet the prespecified noninferiority margin (absolute risk difference, 1.41%; 95% CI, 1.33% to 4.15%; $P_{\text{Noninferiority}} = .09$). Both DES platforms had lower occurrence of target vessel revascularization as compared with BMS.

The secondary safety end point was similar for BP-DES as compared with BMS (3.7% vs 5.0%; HR, 0.72; 95% CI, 0.44 to 1.18; $P = .20$; left panel of Figure 2). A landmark analysis at 1 year revealed no difference in late safety between the 2 stents (right panel of Figure 2).

In summary, BP-DES were noninferior to DP-DES after 2 years in patients requiring large-vessel stents. Both were

Figure 1. Primary End Point Between Drug-Eluting Stents



BMS, bare metal stent; BP-DES, biodegradable-polymer drug-eluting stent; DP-DES, durable-polymer drug-eluting stent.

Adapted from Kaiser C et al. Long-Term Efficacy and Safety of Biodegradable-Polymer Biolimus-Eluting Stents Main Results of the Basel Stent Kosten-Effektivitäts Trial-PROspective Validation Examination II (BASKET-PROVE II), A Randomized, Controlled Noninferiority 2-Year Outcome Trial. *Circulation*. E-pub ahead of print. DOI: 10.1161/CIRCULATIONAHA.114.013520. Accessed December 10, 2014. With permission from American Heart Association, Inc.