2010, patients (n = 7021) with an ACS were randomized to either TRA (n = 3507) or TFA (n = 3514). In order to be included, patients had to have intact dual circulation of the hand. The procedures were performed by interventional cardiologists experienced in both techniques. The primary end point of the trial was the composite of death, myocardial infarction (MI), stroke, or non–coronary artery bypass grafting (CABG)-related major bleeding at 30 days.

The results of the study showed that there was no statistical difference in the rate of the primary end point between TRA and TFA groups (3.7% vs 4.0%; $P = .50$). TRA decreased major vascular complications (1.4% vs 3.7%; $P < .0001$). Access site crossover was higher in the TRA group (7.6% vs 2.0%; $P < .0001$). In subgroup analyses, rates of primary outcome also appeared to be lower in the TRA group in high-volume radial centers ($P = .021$) and STEMI ($P = .025$; Figure 1).

Prof Kala discussed the current state of TRA for PCI in the Czech Republic. He presented unpublished data from the Czech PCI Registry in the National Register of Cardiovascular Interventions containing information from all PCI procedures (> 100 000) that were performed in the country since 2005. The use of TRA has been increasing annually and was used in 70% of PCI cases in 2013 [Kala P. *ESC Proceedings*. 2014].

The registry was used to compare data and outcomes associated with use of the TRA and TFA. As compared to patients treated with TFA, patients in whom TRA was used had a lower incidence of prior MI (27% vs 30%; $P < .001$), PCI (11% vs 13%; < 0.001), heart failure (7.3% vs 6.6%; $P = .002$), and CABG. Patients treated with TRA had lower rates of death at 30 days (2% vs 3%; $P < .001$). Interestingly, Prof Kala noted that this difference in all-cause mortality was significant for in patients with STEMI (1% vs 3%; $P < .001$) and non-ST segment elevation. Prof Kala concluded by noting that these data suggest that the TRA is feasible in patients undergoing PCI, including those with ACS.

SCHIP Reduces Cardiovascular Mortality

Written by Nicola Parry

Khalid Al Faraidy, MD, King Fahd Military Medical Complex, Dhahran, Kingdom of Saudi Arabia, shared updates from the Strategic Cardiac Hajj Intervention Program (SCHIP) in Saudi Arabia. SCHIP has demonstrated considerable success in reducing mortality due to cardiovascular disease (CVD) during Hajj season.

The Hajj is a religious pilgrimage to Mecca and represents the largest annual gathering of Muslim people. For 5 days, approximately 3 million pilgrims congregate around the city, although preparation and travel can take up to 2 weeks. According to Prof Al Faraidy, this pilgrimage is considered the most physical form of worship in Islam, often involving long-distance walks of up to 90 km. Most pilgrims are elderly and have multiple comorbidities—and, unsurprisingly, many of the deaths that occur around this time are CVD related. One study that evaluated hospital admissions during the Hajj found that cardiovascular causes—particularly myocardial infarction (MI) and left ventricular (LV) failure—were responsible for > 60% of intensive care unit (ICU) admissions [Madani TA et al. *Ann Saudi Med.* 2007]. Additional data showed that the death rate of pilgrims from cardiac causes increased from 51.7% to 53.2% from 2006 to 2008 [Al Faraidy K et al. *J Saudi Heart Assoc.* 2012].

The SCHIP was consequently developed in 2009 in an effort to reduce the number of deaths during the Hajj, and the program has produced significant results to date. From 2009 to 2013, the size of the cardiac care team increased from 20 to 120 personnel. Team members are available 24 hours a day and have access to local, 24-hour catheterization laboratories as well. They also coordinate the exchange of patients among hospitals in the area and facilitate helicopter transportation. In addition, the local hospitals are educated about the appropriate management of patients presenting with symptoms of coronary artery disease.

Following the introduction of the SCHIP, the number of cardiac procedures performed in 2009, 2010, and 2011 during the 2 weeks of Hajj significantly increased (183, 288, and 550). Coronary catheterization was the most frequently used technique (90.1%, 80.9%, and 86.7%). In-hospital mortality rates for acute coronary syndrome (ACS) were 4.7%, 4.6%, and 3.0%, and the rates of open heart surgery were 7%, 5.2%, and 4.5% [Al Faraidy K et al. *J Saudi Heart Assoc.* 2012]. Data from the Saudi Arabian Ministry of Health demonstrated that death rates from CVD decreased dramatically after the implementation of SCHIP; rates fell to 43.3% in 2009, 32.5% in 2010, and 19.7% in 2011, respectively.

Prof Al Faraidy emphasized that future plans for the SCHIP include establishing a catheterization laboratory in Arafat. Currently, almost half of patients with STEMI refuse to be transferred out of the region for treatment during the Hajj. Introducing a mobile catheterization laboratory may further help to reduce the rate of CVD deaths to single-digit figures.