**Structural Heart Disease, Other**

(TCTAP A-117 to TCTAP A-119)

**TCTAP A-117**

Combined Transcatheter Aortic Valve Implantation (TAVI) and Stenting of the Coronary Arteries in Patients with Severe Aortic Stenosis

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**Background:** To study the effectiveness and safety of combined PCI and aortic valve implantation in patients at high surgical risk.

**Methods:** Combined correction of aortic stenosis and PCI was performed in 15 patients. The average age of patients was 76.3 ± 3.9 years. Mean area of aortic valve orifice was 0.53 ± 0.13 mm. Maximal transvalvular gradient was 99.7 ± 20.2 mm Hg. Four patients had single-vessel disease, the remaining patients had multivessel disease, in two cases – with the lesion of the left main coronary artery. EuroScore>20%, STS>10%. Syntax score was 18.3 ± 11.5.

**Results:** The first stage of procedure was coronary stenting (2.2 ± 0.75 stents per patient), followed by TAVI. Mean duration of the procedure was 126.3 ± 31.3 min. The average volume of the contrast medium was 322.3 ± 74.6 ml, the time of scopy -36.6 ± 9.6 min. Post-TAVI maximal transvalvular gradient was 15.4 ± 5 mm Hg, regurgitation -1.2 ± 0.5. There were no major intra- and perioperative complications.

**Conclusion:** Transcatheter aortic valve implantation combined with percutaneous coronary interventions can be successfully used for the management of patients at extremely high risk for open-heart surgery and is the only method of treatment for them.

**TCTAP A-118**

Improvement of LV Systolic and Diastolic Function 6-month After Successful Transcatheter Aortic Valve Replacement (TAVR)

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**Background:** We prospectively evaluate the hemodynamic consequences of transcatheter aortic valve replacement (TAVR) with the Edwards Sapien XT prostheses and its effect on left ventricular systolic and diastolic function.

**Methods:** From April 2011 to April 2013, symptomatic patients with severe aortic stenosis (aortic valve area <1cm²) and underwent TAVR were included. Aortic valve prosthesis was implanted via transfemoral, transapical and transaortal methods. All procedures were guided by transesophageal echocardiography. Clinical evaluation and evaluation of LV systolic and diastolic function was performed at baseline and at six months after TAVR. Echocardiography included standard 2D and Doppler analysis of global systolic and diastolic function as well as Tissue Doppler echocardiography.

**Results:** Thirty patients successfully underwent TAVR (66% were male). The mean age was 79.

**Conclusion:** After successful TAVR for severe AS, LV systolic and diastolic function was remarkably improved in most patients after 6 months. These changes will have relevant clinical prognostic value.

**TCTAP A-119**

Catheter-based Patent Foramen Ovale Closure Eliminated Post-dive Arterial Bubbles in Scuba Divers

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**Background:** Patent foramen ovale (PFO) is a risk factor of decompression sickness (DCS) in divers due to paradoxical embolization of bubbles. It has been suggested that catheter-based PFO closure might prevent the arterialization of bubbles and reduce the risk of DCS. However, there are currently no data concerning its effect on post-dive reduction of arterial gas emboli. The aim of this study was to test the effect of catheter-based PFO closure on the occurrence of arterial bubbles after simulated dives.

**Methods:** We performed a prospective study. From April 2011 to April 2013, symptomatic patients with severe aortic stenosis (aortic valve area <1cm²) and underwent TAVR were included. Aortic valve prosthesis was implanted via transfemoral, transapical and transaortal methods. All procedures were guided by transesophageal echocardiography. Clinical evaluation and evaluation of LV systolic and diastolic function was performed at baseline and at six months after TAVR. Echocardiography included standard 2D and Doppler analysis of global systolic and diastolic function as well as Tissue Doppler echocardiography.

**Results:** Thirty patients successfully underwent TAVR (66% were male). The mean age was 79.

**Conclusion:** After successful TAVR for severe AS, LV systolic and diastolic function was remarkably improved in most patients after 6 months. These changes will have relevant clinical prognostic value.

**Figure 1.** Transinthoracic echocardiography: post-dive venous bubbles in right heart chambers in a patient after catheter-based patent foramen ovale closure.

**Transradial Intervention**

(TCTAP A-120 to TCTAP A-124)

**TCTAP A-120**

Intra-arterial Anti-spasm Regimens to Prevent Radial Artery Spasm During Transradial Coronary Angiography

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**Background:** The development of spasm of radial artery is a critical problem encountered during transradial catheterization often leading to switching over to transfemoral route. Various operators have used different kinds of regimens to prevent the occurrence of radial artery spasm. This study was done to analyze the effect of different anti-spasm regimens in preventing the development of radial artery spasm during transradial coronary angiography.

**Methods:** Patients undergoing transradial coronary angiography were included in this study. The radial sheath was inserted and subsequently arterial bubbles were detected by means of transcranial color-flow tract from the parasternal short axis view and their detection was performed for 1 min. Arterial bubbles were detected by means of transcranial color-coded sonography in the middle cerebral artery, bubbles were detected for 1 min during native breathing and subsequently three times for 40 s after a Valsalva maneuver. Tests were considered positive if one or more bubbles were detected.

**Results:** After the 18-m dive, venous bubbles were detected in 74% of divers in the PFO group vs. 80% in the closure group (p=0.1), and arterial bubbles were detected in 32% vs. 0%, respectively (p=0.02). After the 50-m dive, venous bubbles were detected in 88% vs. 100%, respectively (p=1.0) and arterial bubbles were detected in 88% vs. 0%, respectively (p=0.01). The typical appearance of post-dive venous bubbles in the right heart chambers and no arterial bubbles in the left heart chambers in a diver with a PFO closure device is shown in Figure 1.

**Conclusion:** The present study is the first study to demonstrate the effect of catheter-based PFO closure on the occurrence of post-dive arterial bubbles. In our study, no difference was found in the occurrence of venous bubbles between the PFO and closure groups. However, in the closure group no arterial bubbles were detected. Therefore, we suggest that i) the presence of a PFO plays a key role in paradoxical embolization of venous bubbles after scuba dives, ii) closure strategy should have a role in the prevention of unprovoked DCS recurrence in divers.