

high likelihood of surgery on the aortic valve and/or ascending aorta.

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Poster n°3

### Point-of-care Ultrasound guidance to reduce vascular access complications in transfemoral TAVR



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**Introduction** Major vascular (VAC) and life-threatening or major bleeding (LT/MB) complications represent the most frequent adverse outcomes of percutaneous transfemoral TAVR (TF-TAVR). Point-of-Care Ultrasound (POCUS) guidance allows the opportunity to obtain in real-time valuable anatomic informations to puncture in the ideal non-calcified central and horizontal segment of femoral artery. We sought to evaluate in our study the impact of implementation of POCUS-guidance on the vascular and bleeding complications.

**Method** POCUS-guidance for vascular access was implemented as the default approach in our institution in 06/2013 for all TF-TAVR and was applied by all operators after a short training course. Thus, we defined three period and groups of consecutive patients according to the method of puncture (fluoroscopic or POCUS-guidance) and the generation of THV (2nd or 3rd gen.). TF-TAVR with POCUS-guidance and 2nd generation THV and from 06/2013 to 11/2014 (POCUS-guided-2nd gen. group;  $n = 119$ ) were 1:1 successfully matched with 95 patients of the Fluo-guided-2nd gen. with propensity-score (10 variables) (The last TF-TAVR with guidance with 2nd gen. THV;  $n = 119$ ). TF-TAVR implanted with 3rd gen. THV from 11/2014 to 12/2018 (POCUS-guided-3rd gen. group;  $n = 308$ ) were analyzed separately.

**Results** After propensity-matching, all the vascular and bleeding complications were reduced in the POCUS-guided-2nd gen. group compared to Fluo-guided-2nd gen. group with respectively: VAC (6,3% vs. 16,8%; OR=0,31; 95% CI=0,12–0,85;  $P = 0,023$ ); LT/MB (22,1% vs. 6,3%; OR=0,24, CI=0,09-0,63;  $P = 0,004$ ); and VAC related to vascular access (12,6 vs. 4,2%; OR=0,31; CI=0,10–1,01;  $P = 0,052$ ).

**Conclusion** This is the first and the largest study to demonstrate that POCUS-guided cannulation of the femoral artery is associated with a reduction of vascular and bleeding complication and support POCUS-guidance as the gold-standard for TF-TAVR.

**Disclosure of interest** The authors declare that they have no competing interest.

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Poster n°4

### Assessment of osteoblastic activity with 18F-sodium fluoride PET in aortic bioprosthesis structural valve dysfunction: First results of a monocentric observational pilot study



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**Introduction** Structural valve degeneration (SVD) of bioprostheses is a common and serious complication in patients undergoing aortic valve replacement. SVD pathophysiology remains unclear. 18F-sodium fluoride (NaF) and 18F-fluorodeoxyglucose (FDG) positron emission tomography (PET) have respectively shown that an active metabolic phenomenon of calcification rather than an inflammatory process contribute to native aortic valve stenosis. We studied the respective value of NaF and FDG PET to explore the potential mechanisms involved in SVD.

**Method** SVD patients underwent NaF PET to explore potential active calcification process, FDG PET to explore potential inflammatory process and thoracic CT. Tracer uptake was quantitatively measured by the bioprosthesis tissue-to-background ratio of standardized uptake values (TBR). Echocardiographic parameters, bioprosthesis calcium scoring on CT, and qualitative pattern of NaF and FDG activity on bioprostheses were analyzed.

**Results** Twenty-one patients were included. Calcium score was higher in patients with significant NaF visual uptake versus patients without ( $1065 \pm 505$  vs.  $462 \pm 320$ ,  $P = 0.015$ ). The median NaF TBR (3.49, [2.33–5.04]) was significantly higher than FDG (1.34, [1.20–1.47]). Patients with NaF TBR greater than the median value had a higher calcium score ( $1059 \pm 550$  vs.  $566 \pm 363$ ,  $P = 0.05$ ), and showed a tendency to have more severe hemodynamic stenosis. Picture shows an example of patient with SVD (A); CT (B) established localizations of calcium deposits; NaF PET/CT (C) show intense uptake adjacent to calcifications; FDG PET/CT (D) show no uptake (Fig. 1).

**Conclusion** These results suggest a link between SVD severity and active calcification activity and opens new perspectives on the assessment of SVD pathophysiology through NaF PET quantification of ongoing mineral burden.

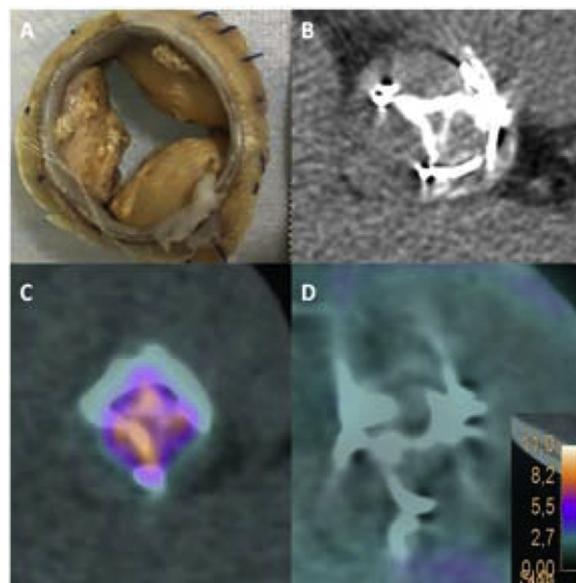


Fig. 1

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