

DEVELOPMENT OF A RISK SCORE BASED ON AORTIC CALCIFICATION TO PREDICT ONE-YEAR MORTALITY AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT

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Background and objective

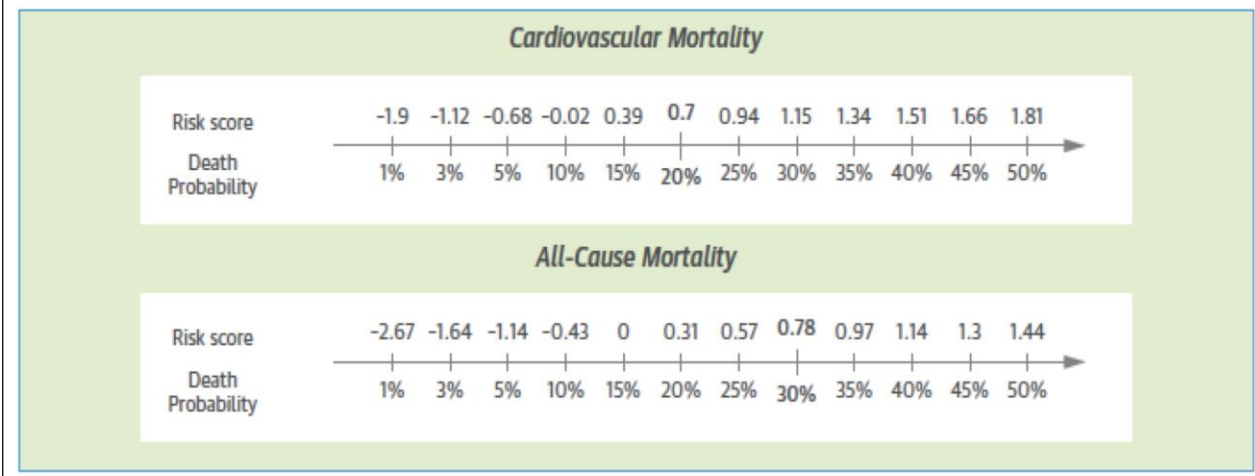
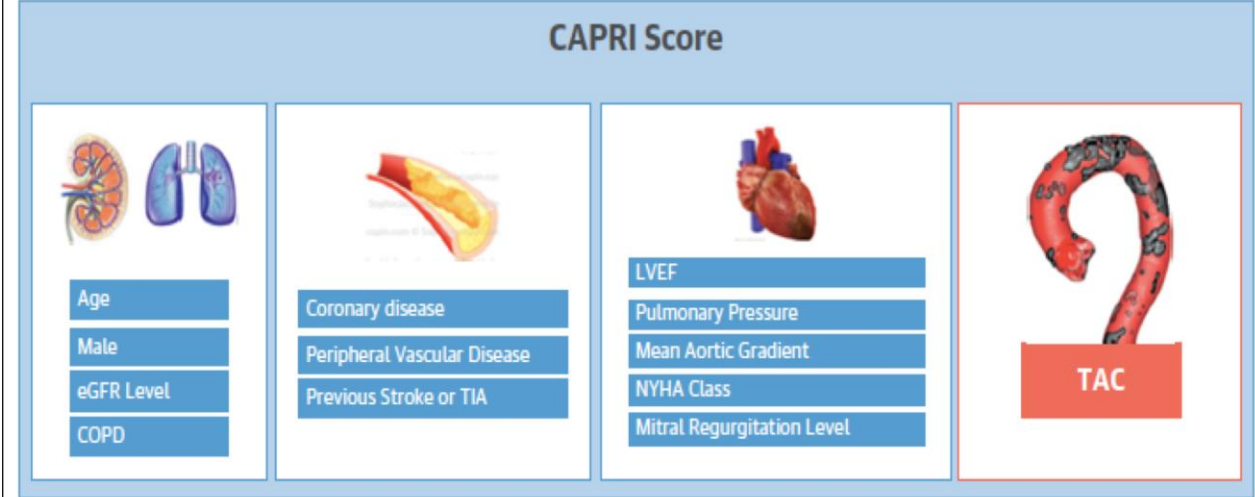
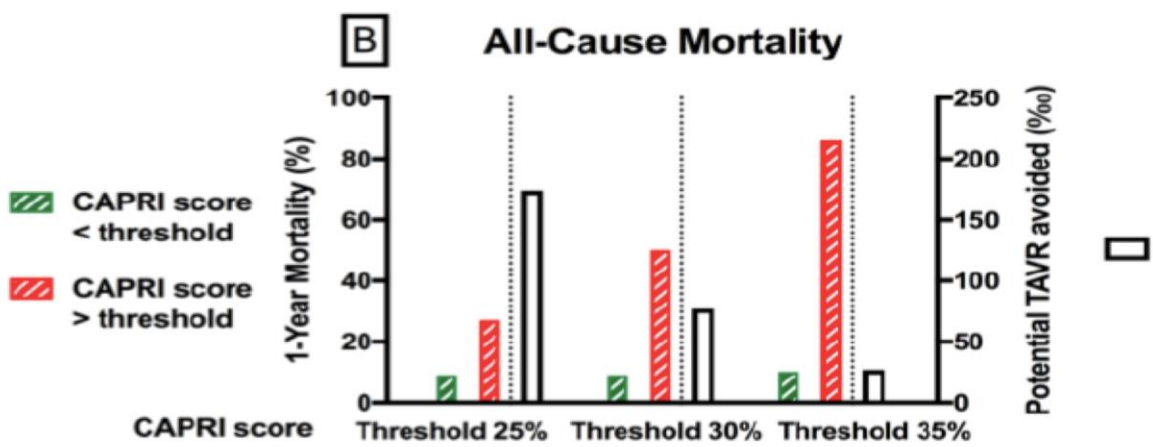
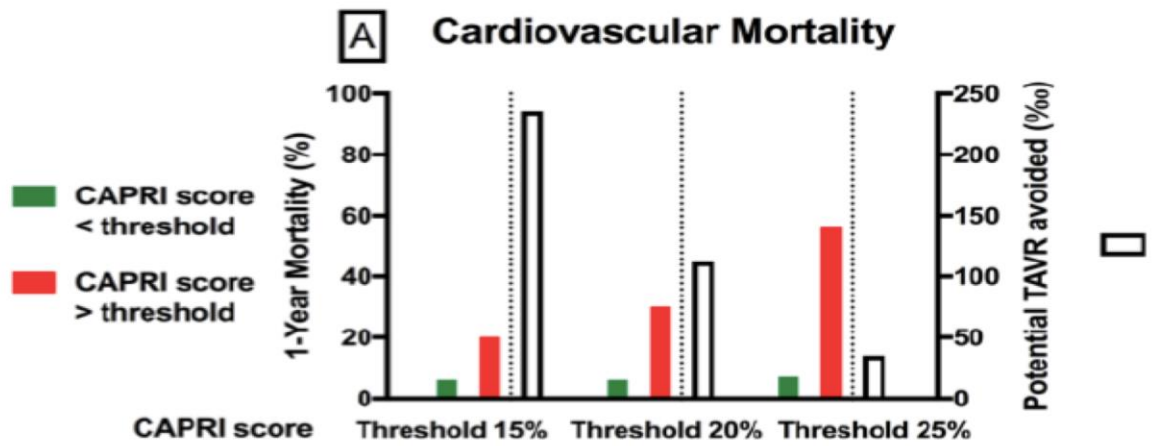
- ❑ A calcified aorta is often associated with poor prognosis after transcatheter aortic valve replacement (TAVR) (*Harbaoui et al, JACC. 2015*)
- ❑ We seek to develop a new scoring system based on thoracic aortic calcification to predict one-year cardiovascular and all-cause mortality after TAVR. This score may help to prevent futile TAVR.

Method

- ❑ Two retrospective cohorts including patients treated by TAVR :
 - ❑ **Training cohort:** 1425 patients from Paris, Rouen, Lyon, Clermont; 2010-2014
 - ❑ **Test cohort:** 311 patients from Paris-Lyon; 2015
- ❑ CAPRI risk scores : linear combination of predictors (Cox model)
 - ❑ Thoracic aortic calcification
 - ❑ Comorbidities and Demographic factors (*age, male, EGFR, COPD*)
 - ❑ Atherosclerotic disease factors (*coronary disease, peripheral vascular disease, stroke or TIA*)
 - ❑ Cardiac function factors (*LVEF, pulmonary pressure, NYHA class, mean transAo gradient, MR*)

Results

- ❑ *Cardiovascular and all-cause mortality at one year after TAVR were 13.0% and 17.9% in the training cohort; 8.2% and 11.8% in the test cohort*
- ❑ **1 cm³ of aortic calcification increase** was associated with:
 - ❑ 6% cardiovascular mortality increase
 - ❑ 4% all cause mortality increase
- ❑ **Predicted and observed survival were highly correlated**
- ❑ **Model's predictive power was fair [AUC 68% (95% CI: [64 – 72]) for cardiovascular and all-cause mortality, and similar in both cohorts**



GFR = glomerular filtration rate; COPD = chronic obstructive pulmonary disease; TIA = transient ischemic attack; LVEF = left ventricular ejection fraction; NYHA = New York Heart Association; TAC = thoracic aortic calcification.

Figure 1 : Cardiovascular and all cause mortality rate according to the threshold of predicted mortality and expected number of TAVR avoided (*the thresholds correspond to the expected 1-year mortality under conservative treatment*)

Figure 2 : Components of the CAPRI Score and Correspondence Between Values of Risk Score and Predicted Mortality Probability in the Training Cohort