



# Incidental findings in patients screened for transcatheter aortic valve replacement: crystal ball or Pandora's box?

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According to the guidelines,<sup>1,2</sup> transcatheter aortic valve replacement (TAVR) is recommended in patients who meet an indication for AVR and who have: (i) prohibitive risk (Class I) or high risk (Class IIa) for surgical AVR (SAVR) and (ii) a predicted post-TAVR survival >12 months. The guidelines also emphasize that when TAVR or high-risk SAVR is being considered, members of an interdisciplinary heart valve team should collaborate to provide optimal patient care. The discovery of incidental findings at the time of screening for TAVR poses some important challenges and dilemmas for the heart team, because it raises uncertainty about the patient's life expectancy following TAVR and thus about the futility of this intervention. The upside of incidental findings is that it may allow earlier detection of non-cardiovascular disease and therefore rapid implementation of potentially life-saving therapy. On the other hand, the downside is that these findings may lead to over-testing, over-diagnosis, and over-treatment of the non-cardiovascular disease and/or under-treatment of the cardiovascular disease, i.e. under-utilization of AVR in the case of patients with severe aortic stenosis.

Previous studies reported that up to 70% of patients evaluated for TAVR have non-cardiovascular incidental findings on computed tomography (CT).<sup>3–6</sup> In about one-third of these patients, the findings are considered significant and, in such case, they commonly generate further clinical evaluation. The majority of significant findings are malignant tumours, whereas the most frequent non-significant findings are pleural effusions or colorectal diverticulosis. The prevalence of incidental findings increases with age and smoking. One study reported an association between the number of incidental findings in a given patients and mortality rate following TAVR.<sup>5</sup>

In this issue of the Journal, Statchon *et al.*<sup>7</sup> present a single-centre observational study that reports the data of 374 patients with severe aortic stenosis who underwent screening for TAVR with dual-source CT. Approximately 20% (70/374) of the patients had a potentially malignant incidental finding (pmIF) on CT, of which 40% were classified as severe pmIF by the interdisciplinary heart team. Patients with severe pmIF were less likely to undergo invasive intervention (i.e. TAVR or SAVR) vs. conservative therapy. Indeed, the heart team

recommended conservative therapy in 32% of patients with severe pmIF vs. 12% in patients with non-severe pmIF and 11% in those patients without pmIF. The presence of pmIF, including severe pmIF, did not influence the time from screening to intervention. Importantly, the presence and severity of pmIF had no significant impact on 2-year survival, which was close to 75% in the three subsets of patients (no pmIF, non-severe pmIF, and severe pmIF). Furthermore, the confirmation of the diagnosis of malignancy following the discovery of pmIF was not associated with increased risk of 2-year mortality.

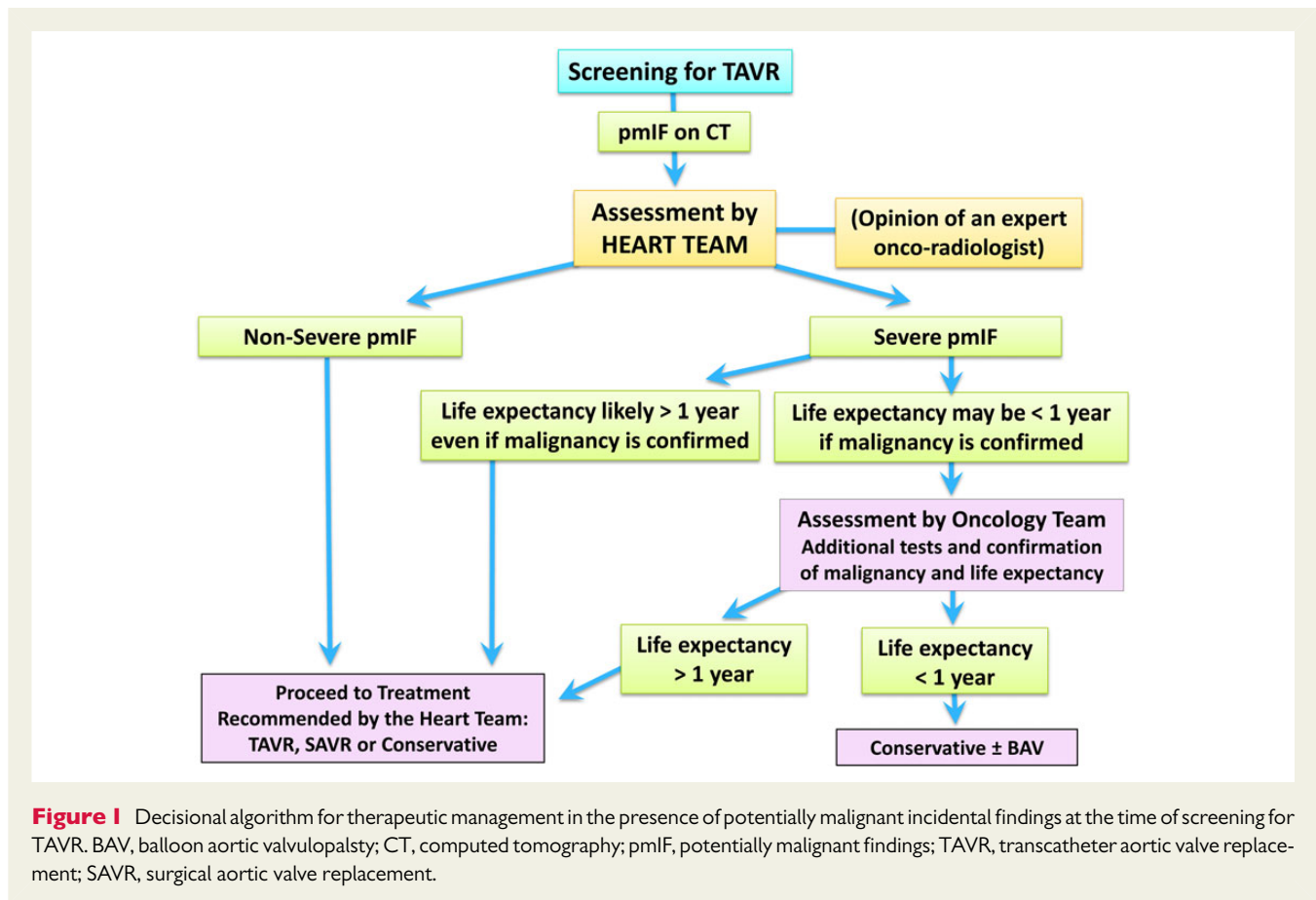
The authors postulated that the decision to select a less invasive intervention in patients with severe pmIF could explain, at least in part, the good midterm survival in these patients. However, patients with severe symptomatic aortic stenosis generally have very high mortality rate with conservative management (e.g. 70% at 2 years in the medical arm of the PARTNER-I Cohort B trial) and about one-third of the patients with severe pmIF were managed conservatively vs. 11–12% in the other subsets of patients. Hence, the decision to select conservative therapy instead of AVR because of the finding of a severe pmIF would rather increase the risk of mortality related to aortic stenosis. Furthermore, patients with severe pmIF likely have higher prevalence of malignancies, which may be associated with increased mortality, at least in the long term. The relatively small number of patients in the group with severe pmIF, the old age of the population, as well as the short follow-up may have limited the ability to detect the negative impact of cancer on survival. Further studies with larger number of patients and longer follow-up are necessary to confirm the impact of severe pmIF on the prognosis of patients screened for TAVR.

The discovery at the time of TAVR screening of severe pmIF generally leads to the performance of additional tests to confirm the presence and severity of the cancer. And subsequently, such information may result in the initiation or optimization of the oncotherapy. Hence, patients who have pmIF in the context of imaging screening for TAVR or any other cardiovascular procedure are more likely to have closer follow-up and earlier/more aggressive therapy for their non-cardiovascular disease. And this may contribute to mitigate the negative impact of the malignancy on midterm survival.

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The data presented in the study of Statchon *et al.* suggest that the heart team took the right decision for the selection of treatment at least for the midterm. However, further studies are required to assess the appropriateness of undertaking further diagnostic evaluations for asymptomatic pmIF in the population referred for TAVR. Pending these studies, a step-by-step approach based on: (i) the severity of pmIF and (ii) the patient's expected life expectancy can be used to guide therapeutic management in these patients (Figure 1). If the assessment by the heart team suggests the presence of non-severe pmIF or severe pmIF with life expectancy likely >1 year even if the malignancy is confirmed, one should proceed to the treatment option (TAVR, SAVR or conservative) recommended by the heart team. If the assessment of the pmIF suggests the possibility of a malignancy that could potentially compromise the patient's life expectancy beyond 1 year, an evaluation by the oncology team should be considered before proceeding to the treatment of aortic stenosis (Figure 1). If this evaluation confirms the presence of advanced malignancy with expected life expectancy <1 year, conservative therapy should be considered with the utilization of palliative balloon valvuloplasty for relief of cardiovascular symptoms. Otherwise, TAVR or SAVR should be performed as recommended by the heart team.

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