



## Editorial

## Transcatheter edge-to-edge repair in patients with a history of cancer: Can we proceed, or is it too early to tell?



## ARTICLE INFO

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The development of percutaneous devices aimed at the treatment of valvular heart disease (VHD) has opened the door for cardiovascular specialists to treat a broader spectrum of VHD patients. In patients at high or prohibitive risk of traditional surgical intervention, percutaneous treatments of VHD are associated with a reduced short-term risk of significant morbidity and mortality. As patients with cardiovascular disease often have significant comorbidities placing them at an increased risk for surgery, having a wide arsenal of tools available is critical to providing patients with optimal care.

Transcatheter edge-to-edge repair (TEER) is one such technology that has been developed in recent years. By virtue of a clip that approximates the mitral valve leaflets, TEER permits percutaneous repair of mitral regurgitation (MR) and has been increasingly utilized for patients with MR at high surgical risk. Several randomized controlled trials have demonstrated the safety and efficacy of TEER in this patient population [1,2]. However, a notable exclusion from these trials is patients with shortened life expectancy, including those with malignancy. Patients with active or a history of malignancy are often excluded from clinical trials for cardiovascular devices. Their exclusion is most commonly based on their reduced life expectancy. Given the prevalence of both cancer and cardiovascular disease, there are large numbers of patients with both conditions [3]. As a result of their regular exclusion from clinical trials, there is often little to no evidence to support the use of these devices in these patients.

In this issue of the *International Journal of Cardiology: Heart & Vasculature*, Khan et al conducted a retrospective study to identify the outcomes of patients with a history of cancer undergoing TEER [4]. They identified 503 propensity-matched pairs of patients from the TriNetX research network that underwent TEER with or without a history of cancer. They identified similar rates of mortality, heart failure exacerbation, stroke, and hospitalizations up to 1 year postoperatively between groups. The results of this study have several implications for future

practice.

First, the data provided demonstrate that TEER is currently being utilized in patients with a history of malignancy irrespective of the aforementioned paucity of evidence supporting its use in this patient population. The data did support the notion that TEER is safe in patients with a history of malignancy and portends acceptable results as compared to non-cancer patients [4]. Although scarce, current literature is consistent with that reported by Khan et al, indicating comparable outcomes in patients with a history of malignancy to those without [5–9].

While an important initial investigation in this under-studied field, several questions remain unanswered. There was no differentiation between patients with active malignancy and those with history of malignancy due to restrictions in data collection. This limits the ability to generalize the data to any or all patients with cancer as cancer in remission heralds a significantly different prognosis than active malignancy in its various types and stages. While the study demonstrated similar results between the two cohorts, it is not clear whether this relationship will be consistent when compared to a cohort of patients with active malignancy. Importantly, there was also no comparison in this study between TEER and optimal medical management for patients with a history of malignancy.

An important field with ever-increasing prevalence, the cultivation of high-quality data investigating the outcomes of patients with active and previous malignancy following interventional cardiac procedures is paramount to identifying the best quality care for these patients [4,5,8,9]. In this regard, several areas require further investigation. First, additional retrospective and prospective studies are required to bolster the existing data supporting the use of TEER in patients with cancer [3–7]. In addition to stratifying patients based on active and previous malignancy, future investigations require direct comparisons of patients with varying types and stages of cancer to comparable

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cohorts of patients without cancer. Given the heterogeneity in patients diagnosed with cancer, individualizing care is essential. Differentiating cancer type and stage will permit the development of tailored approaches to patient care, consequently improving patient outcomes. Furthermore, comparisons between patients with cancer undergoing TEER and those receiving optimal medical therapy are of great importance given the need to identify whether the benefits identified in previous trials for non-cancer patients are consistent in this patient population. Additionally, the specific outcomes analyzed and the timeline at which they are reported are crucial. To conclusively establish benefit following TEER, short-term outcomes are insufficient. While long-term outcomes may not be feasible or informative to assess in high-risk patients with heart failure and active malignancy, a minimum of 1-year outcomes should be prioritized as they have the potential to demonstrate TEER's efficacy in patients with a guarded prognosis at baseline. The measure of postoperative quality of life as compared to the patient's baseline also requires diligent attention. While patients at prohibitive risk for surgery may not experience the well-established long-term benefits of surgical mitral valve repair, TEER provides an option for reducing symptoms and improving quality of life in addition to attenuating morbidity and mortality. Therefore, quality of life measures are imperative in capturing the full scope of benefits that may be provided by TEER. Regardless of the outcomes identified in future studies, careful patient selection will always be paramount in the utilization of TEER in patients with cancer, especially given the heterogeneity between groups and the difficulty of generalizing these results [10]. In addition to the patient's symptomatic status and comorbidities, consideration of cancer type and stage, quality of life, and overall prognosis are necessary in guiding the management algorithm.

Ultimately, the results of the investigation by Khan et al highlight the gap in the literature regarding the inclusion of patients with malignancy in the studies and trials investigating outcomes of patients receiving TEER and other cardiovascular interventions. Given the clear prevalence of TEER in this patient population, additional, focused investigation into this topic is required to address the paucity in the literature and ensure that cardiovascular interventions can be tailored to individual patients resulting in optimal outcomes and efficient use of healthcare resources.

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RE, NMF, JN: Conception, writing/revisions, approval of final manuscript.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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