



EMBARGOED UNTIL 20th NOVEMBER 2022 1730HRS SGT

How to ablate ventricular tachycardia (VT) – approaches, management considerations and latest developments

Context:

Sustained ventricular tachycardia (VT) is an important cause of morbidity and mortality in patients with structural heart disease. While implantable cardiac defibrillators (ICD) can terminate VT episodes and reduce risk of sudden cardiac death, a significant proportion of patients (40-60%) still develop recurrent VT despite the use of anti-arrhythmics (AADs). Catheter ablation (CA) with radiofrequency (RF) is currently considered the most effective non-pharmacological modality in reducing VT burden with several randomised trials demonstrating reduction in recurrence of VT onset and ICD therapies. However, success is at best modest and thus it is imperative to consider alternative ablation modalities to treat VT.

Summary:

In this symposium, the speakers touched on the various approaches and considerations in tackling patients with (refractory) VT.

Currently, CA using RF is considered gold standard for those who failed AADs and can be performed either endocardially or epicardially depending on the site of VT exit. However, acute procedural success is modest and thus there is increasing interest in newer techniques/ approaches.

In recent years, the use of half strength saline for irrigation has also been proposed to improve RF lesion. Infrared thermal energy surveillance data confirmed that the use of half strength saline resulted in larger and deeper ablation lesions but at a tradeoff of increased steam pops compared to normal saline.

On the other hand, ethanol ablation has also shown promise in VT patients who are refractory to conventional medical and ablative therapies. It can either be performed antegradely by injecting ethanol into the coronary arteries to the intended territory or retrogradely via the coronary sinus. In a large meta-analysis (7 antegrade; 3 retrograde approach) amounting to 174 patients, acute procedural success was reported to be 72.4% with a 1-year rate of relapse at 24.4%. However, one can expect significant complication rates of up to 14.1% with pericardial complications and complete atrioventricular block being the most frequent.

Recently, a group led by Dr Douglas Packer also reported a first-in-man feasibility trial of needle ablation using an intramyocardial retractable needle that can deliver both RFA energy and heated saline to generate intramural lesions with an impressive 97% acute procedural success in 32 patients with VT refractory to catheter ablation.

Sometimes, risk of invasive procedures may be prohibitive and thus non-invasive methods need to be considered in such acutely ill patients with refractory VT. One such example is that of the

stereotatic body radiotherapy (SBRT). Generally, high dose per fraction in the range of 25-40 Grays is used in SBRT to target specific ventricular myocardium to result in local tissue destruction. While promising, some unanswered question remains such as technical gaps in treatment delivery, optimal dosing regimen and appropriate dose fall off for treatment planning.

Lastly, Pulse field ablation (PFA) has also been recently studied to treat VT although most data is currently on AF ablation.

Message:

“It appears that radiotherapy of VTs is modestly efficacious and rather adjunctive to catheter ablation” said Dr. Josef Kautzner, MD, PhD, Charles University Medical School I, Prague, Czech Republic. However, he opined that current data “do not support the use of SBRT as first line treatment for VT” and that catheter ablation is still considered as gold standard in those that fail antiarrhythmics. This view was also shared by Dr Jose Luis Merino, MBBS, La Paz University Hospital Madrid, Spain who also added that “ethanol venous infusion appears promising but is complex, there are some concerns about safety on needle ablation while PFA is still in its embryonic stage for VT ablation.”

Session details:

Symposium 33 - Ventricular Tachycardia 2 – Structural VT Ablation: Sunday 20th November 2022 1-2.10PM SGT

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