

2019 ESC Guidelines on: Supraventricular Tachycardias (SVT).

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Introduction

Supraventricular tachycardias (SVT) (atrial rate >100bpm) are common (35/100,000 person years). It often affects individuals >65 years old, being five times more common compared to younger individuals. Females suffered twice as often as males. Palpitations, fatigue, lightheadedness, chest tightness, dyspnoea and altered consciousness are the usual symptoms, in descending order of frequency. AVNRT (atrio-ventricular nodal reentrant tachycardia), atrial flutter and AVRT (atrio-ventricular reentrant tachycardia) are, in descending order of incidence, the SVTs managed in electrophysiology cath lab by specialised centres. SVTs are broadly divided into wide (>120ms) and narrow (\leq 120ms) QRS tachycardias. They arise due to enhanced automaticity, triggered activity or re-entry. The current guideline from ESC provides a clear pathway for management of individual SVTs.

What's new in the 2019 guidelines

1. Atrial flutter: Ibutilide or dofetilide are first choice of medicines recommended for conversion of atrial flutter. Anticoagulation should be considered for atrial flutter without AF but risk stratification may not be identical to the case in AF, so the threshold of initiation is not established. High rate atrial pacing is recommended for atrial flutter termination in presence of an implanted pacemaker or defibrillator.
2. AVRT : Conduction properties of the accessory pathway in individuals with pre-excitation should be assessed by electrophysiology study (IIa recommendation) to accurately risk stratify, but may alternatively be evaluated non-invasively (IIb), i.e. exercise test. Amiodarone is not recommended for treating pre-excited AF. Catheter ablation is recommended if high risk features are identified on EPS, like shortest pre-excited RR interval (SPERRI) <250ms, AP ERP (Accessory pathway effective refractory period) <250ms, multiple APs or inducible AP mediated tachycardia. Catheter ablation should be considered if LV systolic dysfunction is due to pathway related electrical dyssynchrony and may be considered if low-risk features on invasive or non-invasive evaluation.
3. Atrial tachycardia (AT): Ibutilide may be considered for acute focal atrial tachycardia. Ivabradine with or without beta blocker may be considered for chronic therapy, in addition to standard therapy, for focal atrial tachycardia.
4. Inappropriate sinus tachycardia: ivabradine with or without beta blocker should be considered for symptomatic inappropriate sinus tachycardia

5. Postural orthostatic tachycardia syndrome: ivabradine can be used for postural orthostatic tachycardia syndrome (POTS).
6. Catheter ablation: Pace (CRT or His-pacing) and ablate (AV nodal ablation) strategy is recommended for tachycardiomyopathy, where the responsible tachycardia cannot be ablated or controlled with medicine.
7. Pregnancy with SVT: Antiarrhythmic medications are avoided during the first trimester of pregnancy. Beta 1 selective blocker or verapamil, in order of preference, should be considered for prevention of SVT without WPW syndrome. Flecainide or propafenone should be considered for prevention of SVT with WPW syndrome *without* any structural or ischemic heart disease.

Important differences from ACC/AHA/HRS SVT 2015 guidance (2)

The ACC/AHA/HRS 2015 SVT guidance is the only guidance available for comparison. The ESC 2019 guidance provides the following information, which is not covered in the 2015 ACC/AHA/HRS SVT guidance.

1. wide QRS tachycardia management pathway
2. Tachycardiomyopathy (TCM) - diagnosis and management
3. SVT for athletes in sports : Ablation is recommended in case of symptomatic or asymptomatic AVRT, AF with WPW (Wolf Parkinson White) syndrome, AVNRT and AT. Sports can be recommenced if no recurrence observed after 1 month.
4. Driving restrictions in relation to SVT: Group 1 driving license can be valid, if there is no history of syncope. Otherwise, driving must be ceased until underlying condition treated or controlled. A group 2 license is allowed if there is: strict adherence to anticoagulation (if indicated for stroke prophylaxis); the patient is asymptomatic from arrhythmia (i.e. absence of syncope or palpitations with dizziness) and there has been specialist medical assessment of pre-excitation prior to permission for driving.
5. Postural orthostatic tachycardia syndrome – a separate consensus document by ACC/AHA/HRS exists from 2015. No new changes are made in this latest document to those recommendations.
6. Focal atrial tachycardia: Use of flecainide or propafenone can be considered for acute management. Catheter ablation therapy is only indicated if incessant or causing TCM, rather than as an alternative therapy. Sotalol was not recommended for chronic management. Pacing with AV nodal ablation therapy should be considered in patients with LV dysfunction with recurrent multifocal AT refractory to drug therapy.
7. Atrial flutter or macro reentrant atrial tachycardia: flecainide, propafenone, dofetilide and sotalol should not be used in a chronic management regime.

8. AVNRT: Intranasal etripamil can be used to achieve normal rhythm. Propafenone and amiodarone have been removed from acute management of AVNRT. Digoxin, sotalol, dofetilide, propafenone and amiodarone are not mentioned for chronic therapy.
9. AVRT: Amiodarone is contraindicated in pre-excited AF but can be considered for refractory antidromic AVRT cases. Catheter ablation is recommended in asymptomatic patients with an accessory pathway effective refractory period ≤ 250 ms (in contrast to < 240 ms in ACC/AHA/HRS 2015 guidance). ESC 2019 mentions those with asymptomatic pre-excitation, who are at low risk of SCD, which can be identified by normalisation of PR interval and loss of delta wave during exercise test or following procainamide, disopyramide or propafenone administration.
10. SVT in ACHD patients: Dofetilide, ibutilide, propafenone and sotalol have been removed to treat acute management of AT or SVT. Sotalol is contraindicated for chronic management of SVT or atrial flutter. Ibutilide for chronic therapy of SVT is not mentioned in new guidance.
11. SVT in pregnancy: Beta 1 selective blocker, digoxin or ibutilide can be used for acute therapy. Verapamil, procainamide and amiodarone are not mentioned in the ESC 2019 guidance.

ACC/AHA/HRS 2015 guidance highlights the ongoing management of undifferentiated (“undiagnosed”) SVT (rather than AT/AVNRT/AVRT) patients, which is not clearly discussed in the ESC 2019 guidance.

Impact on UK with regard to change in practice

Ibutilide as well as etripamil and dofetilide are not licensed in the UK. The current guideline otherwise reflects more or less standard practice in the clinical management of supraventricular arrhythmia.

The current guideline provides a clear flowchart for SVT management. It incorporates up to date evidence into consideration and guides management in special circumstances.

Reference:

1. Brugada J, Katritsis DG, Arbelo E, Arribas F, Bax JJ, Blomström-Lundqvist C, et al. 2019 ESC Guidelines for the management of patients with supraventricular tachycardia. The Task Force for the management of patients with supraventricular tachycardia of the European Society of Cardiology (ESC). *Eur Heart J* [Internet]. 2019 Aug 31; Available from: <http://dx.doi.org/10.1093/eurheartj/ehz467>
2. Page RL, Joglar JA, Caldwell MA, Calkins H, Conti JB, Deal BJ, et al. 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With Supraventricular Tachycardia: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Rhythm Society. *J Am Coll Cardiol*. 2016 Apr 5;67(13):e27–115.