

# Supraventricular Tachycardia • Acute Algorithm

2015 ACC/AHA/HRS  
SVT Guideline  
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Regular narrow-complex SVT in adults • point-of-care reference for internal medicine

- Class I – recommended
- IIa – reasonable
- IIb – may consider
- III: Harm – do not use

## 1 First: 12-lead ECG & rule out the two traps

### ⚠ Wide-complex tachycardia (QRS > 120 ms)

Assume VT until proven otherwise – especially with prior MI / structural heart disease. **Do NOT give verapamil or diltiazem** (risk of haemodynamic collapse / VF). AV dissociation, fusion/capture beats or concordance ⇒ VT.

### ⚠ Pre-excited AF (irregular, broad, often very fast)

Avoid all AV-nodal blockers – IV/oral β-blocker, diltiazem, verapamil, digoxin, IV amiodarone **III: Harm**. They accelerate accessory-pathway conduction → VF. Use **ibutilide** or **IV procainamide** if stable; **synchronised cardioversion** if unstable.

## 2 Acute Rx – regular SVT

### Vagal manoeuvres ± IV adenosine

Supine + legs up (modified Valsalva). Adenosine 6–12–12 mg rapid IV push, proximal line flush. I

▼ if ineffective / not feasible

### Haemodynamically unstable?

NO ↓ STABLE | YES → CARADIOVERT

NO ↓ stable

### IV β-blocker, diltiazem or verapamil

Diltiazem / verapamil only if stable & no HFrEF; exclude VT / pre-excited AF first. IIa

▼ if ineffective

### Synchronised cardioversion

First-line if unstable. Not for rhythms that self-terminate & recur. I

## 3 Acute doses (IV)

<b>Adenosine</b>	6 mg → 12 mg → 12 mg rapid bolus, proximal IV, immediate saline flush; caution: reactive airway dz, transplant heart
<b>Diltiazem</b>	0.25 mg/kg over 2 min
<b>Verapamil</b>	5–10 mg over 2 min slow infusion (≤20 min) lessens hypotension; avoid in HFrEF
<b>Metoprolol</b>	2.5–5 mg over 2 min ×3
<b>Esmolol</b>	500 µg/kg → 50–300 µg/kg/min
<b>Amiodarone</b>	150 mg over 10 min
<b>Ibutilide</b>	1 mg over 10 min (≥60 kg) flutter / pre-excited AF; monitor QT ≥4 h, pre-treat Mg

## 4 Arrhythmia-specific pointers

RHYTHM	RECOGNISE	ACUTE	DEFINITIVE / ONGOING
<b>AVNRT</b>	Most common SVT; pseudo-R' in V1, pseudo-S inferior; short RP	Vagal / adenosine → IV CCB/β-blocker → cardiovert	Slow-pathway ablation <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> (>95%, <1% AVB); CCB/β-blocker <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span>
<b>Orthodromic AVRT</b>	P in early ST; check resting ECG for pre-excitation (δ-wave)	Vagal / adenosine; IV CCB/β-blocker if no pre-excitation	Accessory-pathway ablation <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> ; CCB/β-blocker if concealed
<b>Atrial flutter</b>	Sawtooth, atrial 250–330; regular or variable block	Rate: β-blocker/dilt/verap <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> ; ibutilide/dofetilide or DCCV	CTI ablation <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> (typical); anticoagulate as per AF
<b>Focal AT</b>	Discrete P, isoelectric baseline; long RP; warm-up/down	IV β-blocker/dilt/verap <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> ; adenosine for dx <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span>	Catheter ablation <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span> ; flecainide/propafenone if no SHD <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span>
<b>MAT</b>	≥3 P-wave morphologies, irregular; pulmonary disease	Treat underlying cause; IV metoprolol or verapamil <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span> ; ± Mg	Oral verapamil/diltiazem or metoprolol <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span> . DCCV not useful.
<b>IST</b>	Diagnosis of exclusion; rate >100 rest, mean >90/24 h	Exclude / treat reversible causes <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I</span>	Ivabradine <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span> ; β-blocker <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIb</span> ; ± combination
<b>Junctional</b>	Rare in adults; narrow, AV dissociation may be seen	IV β-blocker <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span> ; dilt/procainamide/verapamil <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span>	Oral β-blocker <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIa</span> ; ablation if refractory <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">IIb</span> (AVB risk)

## 5 Ongoing Rx – stepwise (no pre-excitation)

### EP study + catheter ablation

Offer to all candidates – potentially curative, first-line for AVNRT / AVRT. I

▼ if declined / awaiting

### β-blocker, diltiazem or verapamil

First-line medical option if patient declines / awaiting ablation. I

▼

### Flecainide or propafenone

Only if no structural / ischaemic heart disease. IIa

▼

### Amiodarone, dofetilide, sotalol

Class III agents usable with SHD; monitor QT. Digoxin IIb (no pre-excitation). IIb

## 6 Pregnancy & key cautions

### Pregnancy – acute

Vagal I → adenosine I → IV metoprolol / propranolol IIa; cardioversion safe all trimesters I.

### Pregnancy – ongoing

Metoprolol, propranolol, digoxin first-line; flecainide / propafenone if no SHD. Avoid drugs in 1st trimester; atenolol → IUGR.

### Remember

**Verapamil / diltiazem** avoided in HFrEF & suspected systolic HF. Flutter / AT / ACHD with flutter ⇒ **anticoagulate as per AF** risk profile.