AF WITH RVR

Atrial fibrillation with rapid ventricular response

TREAT THE *trigger*

UNSTABLE? hypotension / shock, ischaemic chest pain, acute heart failure or altered mentation from the rate → SYNCHRONISED DC cardioversion (start ~120-200 J). Sedate if able.

TREAT THE TRIGGER FIRST

- **Common drivers -** sepsis, hypovolaemia, pain, PE, hyperthyroidism, alcohol
- **Electrolytes -** correct K and Mg - low magnesium sustains RVR
- **Reversible -** new AF in critical illness is often trigger-driven and reverts when treated
- **Assess -** 12-lead ECG, echo, TFTs, electrolytes; exclude pre-excitation (WPW)

RATE CONTROL *target < 110 (lenient)*

- **Beta-blocker -** metoprolol 2.5-5 mg IV; first-line if no decompensated HF
- **Diltiazem / verapamil -** if beta-blocker contraindicated; AVOID in HFrEF
- **Digoxin -** add-on in heart failure / hypotension (slow onset)
- **Amiodarone -** rate + rhythm in HF or refractory; central line for infusion

RHYTHM CONTROL

- **Cardiovert if -** onset < 48 h, OR anticoagulated / left-atrial thrombus excluded (TOE)
- **Chemical -** flecainide (no structural disease) or amiodarone; DC if preferred
- **> 48 h / unknown -** anticoagulate 3 weeks (or TOE) before elective cardioversion

ANTICOAGULATE & CAUTION

- Stroke risk by CHA_2DS_2-VASc; DOAC first-line (assess bleeding risk)
- Pre-excited (WPW) AF: irregular broad complex - NO AV-nodal blockers
- Use procainamide or DC cardioversion for pre-excited AF

DRUG DOSES *adult IV*

Drug	Dose	Note
Metoprolol	2.5-5 mg IV q5 min (max 15 mg)	Then oral; avoid in decompensated HF
Diltiazem	0.25 mg/kg IV over 2 min, then infusion	Avoid in HFrEF / pre-excitation
Digoxin	0.5 mg IV load, then 0.25 mg q6h (≤ 1.5 mg/24 h)	Slow onset; useful in HF / hypotension
Amiodarone	300 mg IV over 1 h, then 900 mg / 24 h	Central line; rate + rhythm in HF
Magnesium	2 g IV over 15 min	Aids rate control; replace the deficit

RATE vs RHYTHM: rate control suits most. Choose rhythm control for symptoms despite rate control, a first episode, or a clear reversible trigger. In critical illness, treat the cause and rate-control - most revert spontaneously.

PEARLS & PITFALLS

- New AF with RVR in critical illness is usually a symptom - treat sepsis, PE, pain and electrolytes first.
- Unstable from the rate = electricity, not drugs - synchronised cardioversion without delay.
- Replace magnesium: a low Mg keeps the rate up and blunts your rate-control drugs.
- Pre-excited AF (WPW): never give AV-nodal blockers; use procainamide or DC cardioversion.

References: ESC AF 2024 · ACC/AHA/ACCP/HRS AF 2023 · ACLS 2020 · CHA_2DS_2-VASc.

Educational aid; verify doses against local protocol and patient factors.