
Atrial Fibrillation in Critical Illness
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- Disclosures

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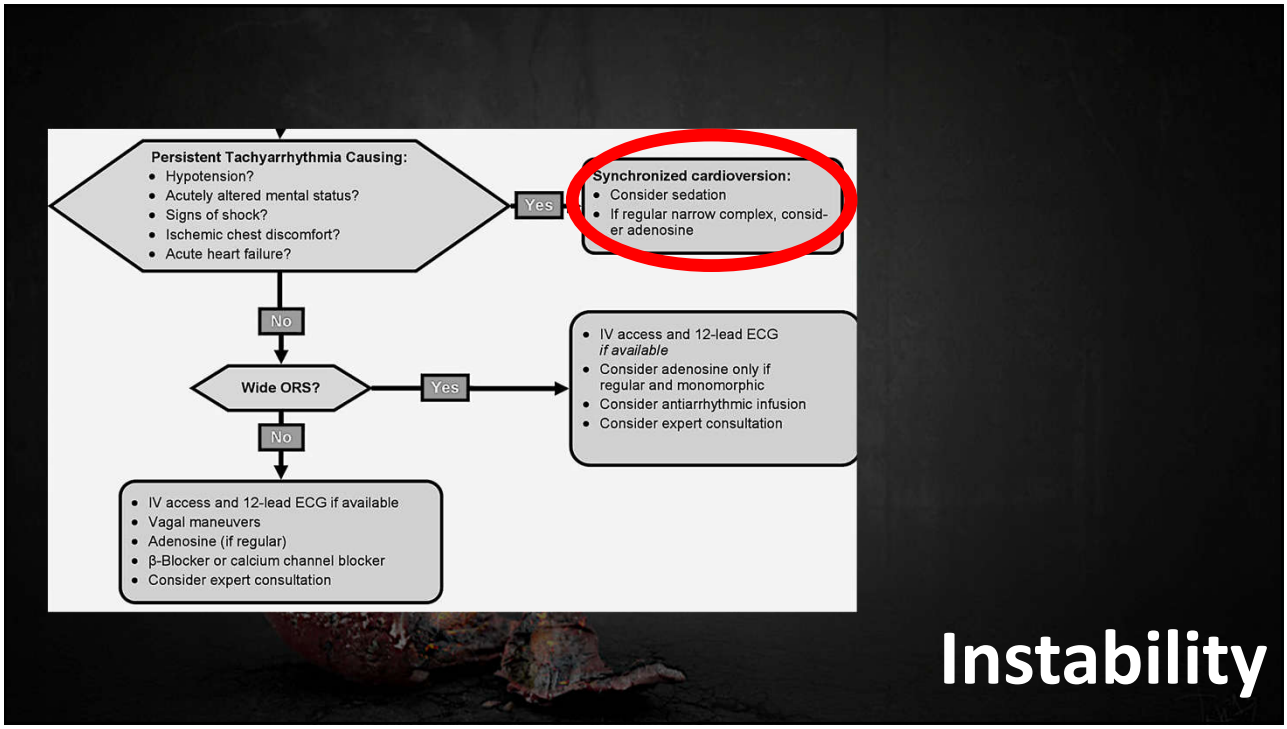
Persistent Tachyarrhythmia Causing:
Hypotension?
Acutely altered mental status?
Signs of shock?
Ischemic chest discomfort?
Acute heart failure?
Yes
Synchronized cardioversion:
Consider sedation
If regular narrow complex, consider adenosine
No
Wide QRS?
Yes
IV access and 12-lead ECG if available
Consider adenosine only if regular and monomorphic
Consider antiarrhythmic infusion
Consider expert consultation
No
IV access and 12-lead ECG if available
Vagal maneuvers
Adenosine (if regular)
β-Blocker or calcium channel blocker
Consider expert consultation
Instability

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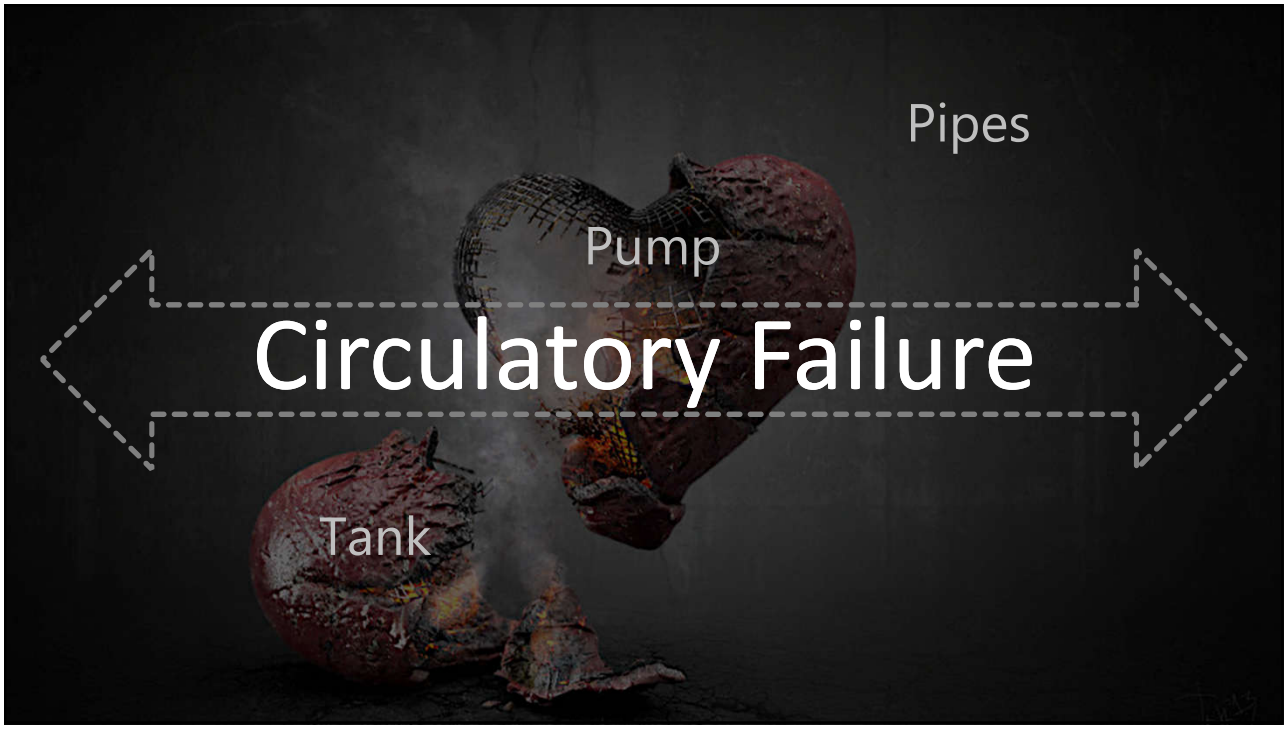
Pipes
Pump
Circulatory Failure
Tank

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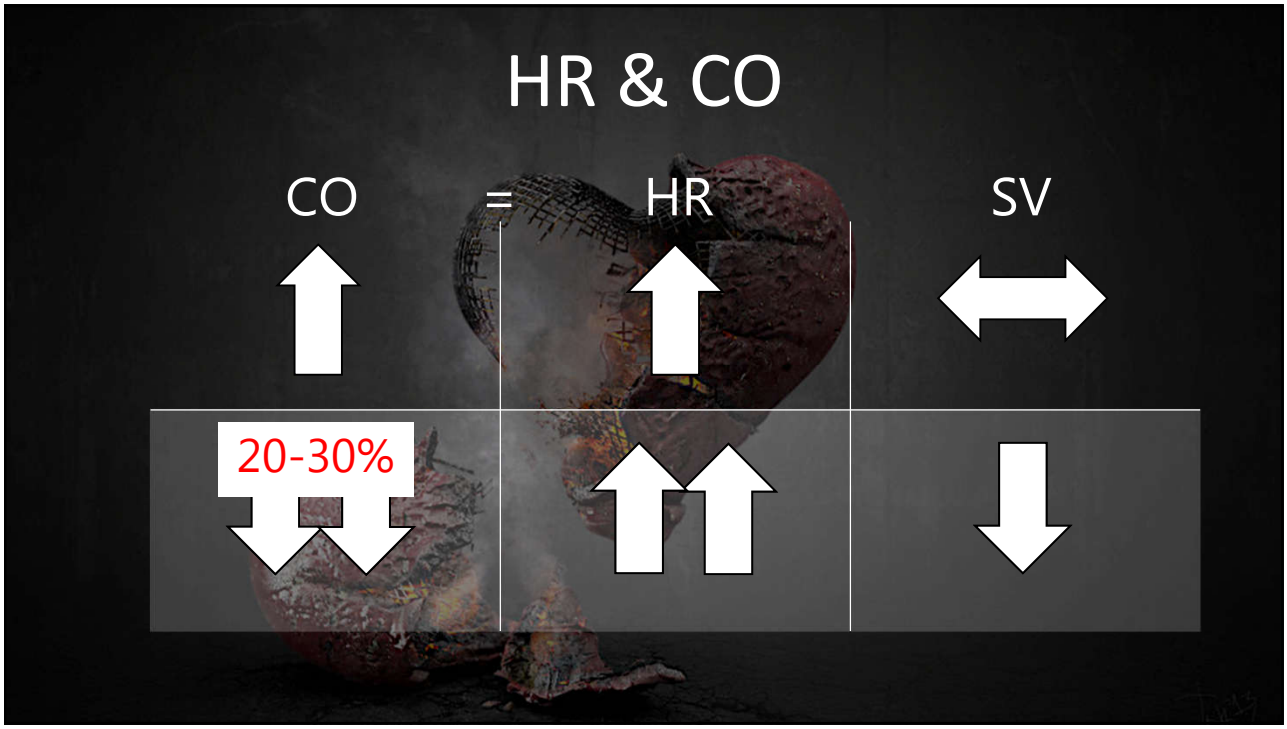
HR & CO
CO
=
HR
SV
20-30%

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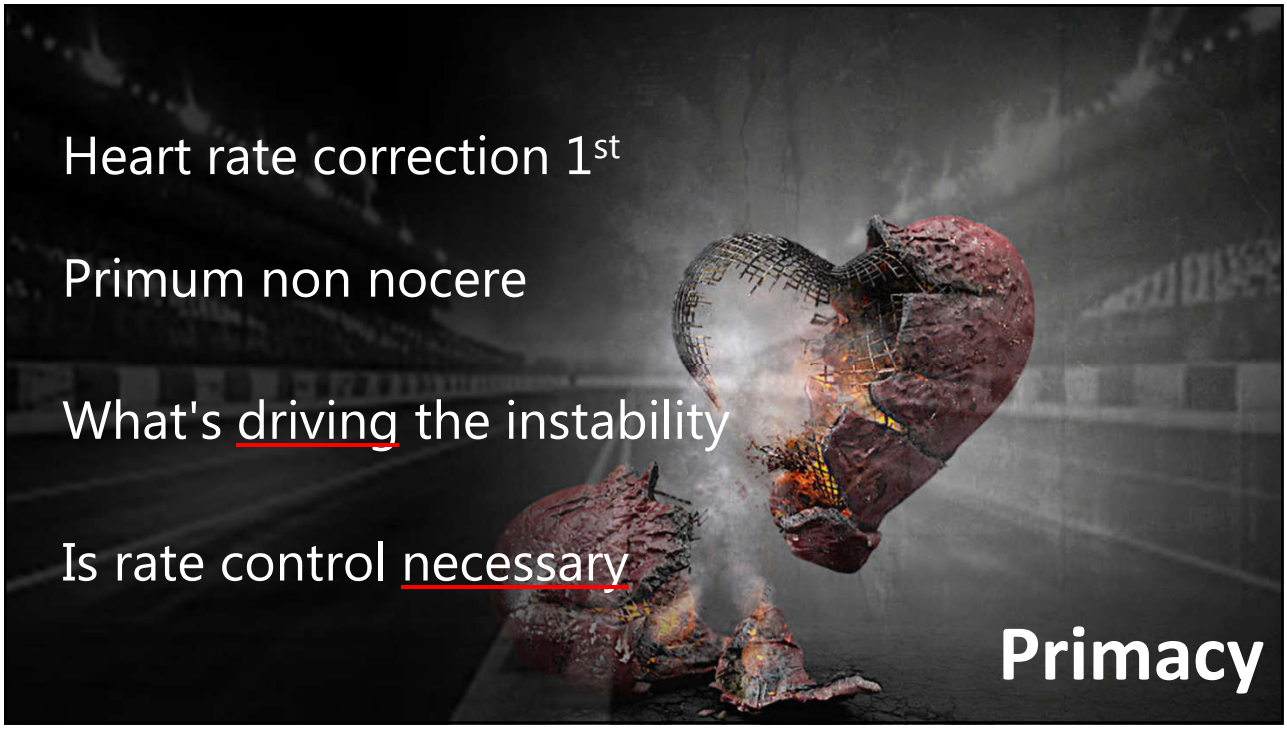
Heart rate correction 1st
Primum non nocere
What's driving the instability
Is rate control necessary
Primacy

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1°→ AF **IS** the trigger
2°→ AF **IS NOT** the trigger
Paradigm

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Accessory pathway
New onset/paroxysmal
Post cardiac surgery
1°AF

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Rate v. Rhythm

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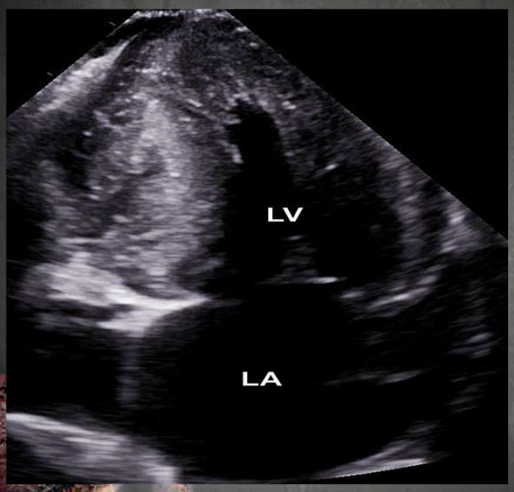
Structural Dz*
↓LV compliance
↓Diastolic filling

Atrial kick is essential



1°AF

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Cornerstone
Energy
Sedation
Placement
1°AF

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One Drug
To Rule Them
ALL
AAD

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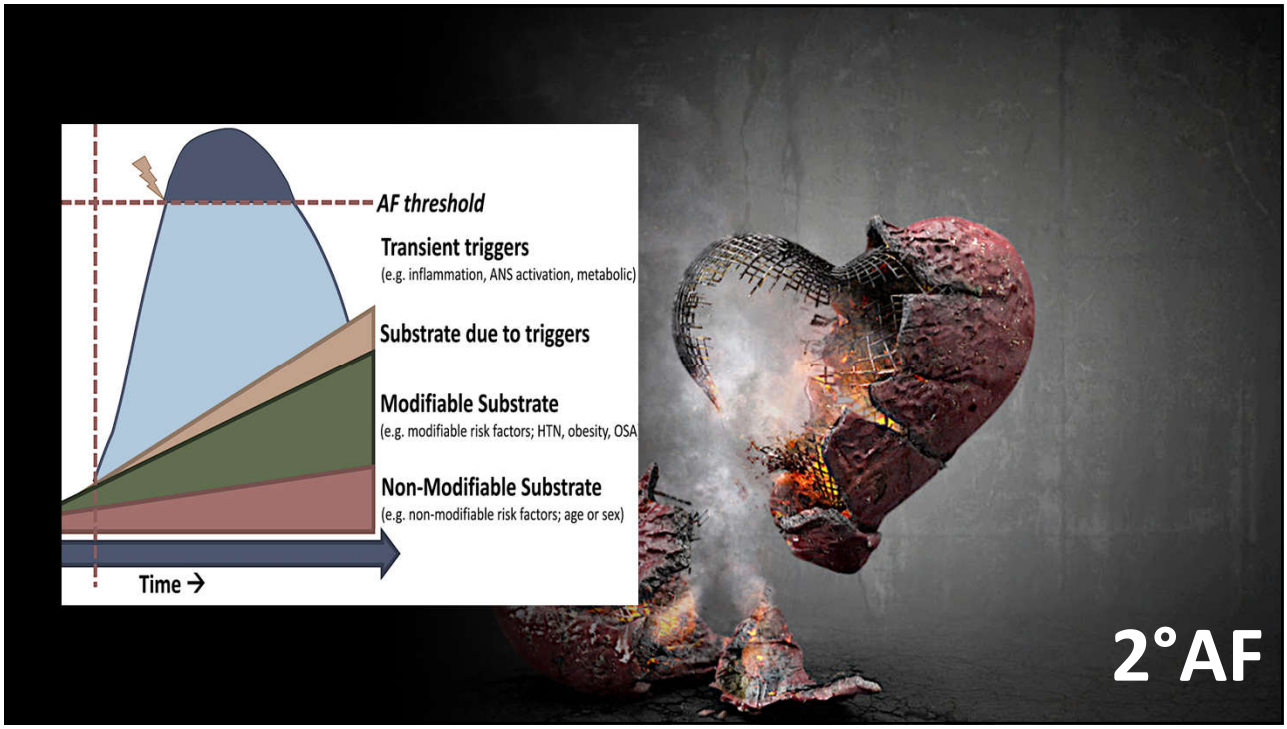
AF threshold
Transient triggers
(e.g. inflammation, ANS activation, metabolic)
Substrate due to triggers
Modifiable Substrate
(e.g. modifiable risk factors; HTN, obesity, OSA
Non-Modifiable Substrate
(e.g. non-modifiable risk factors; age or sex)
Time →
2°AF

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EMERGENCY
Treat the inciting trigger
Tank
Pump
Pipes
2°AF

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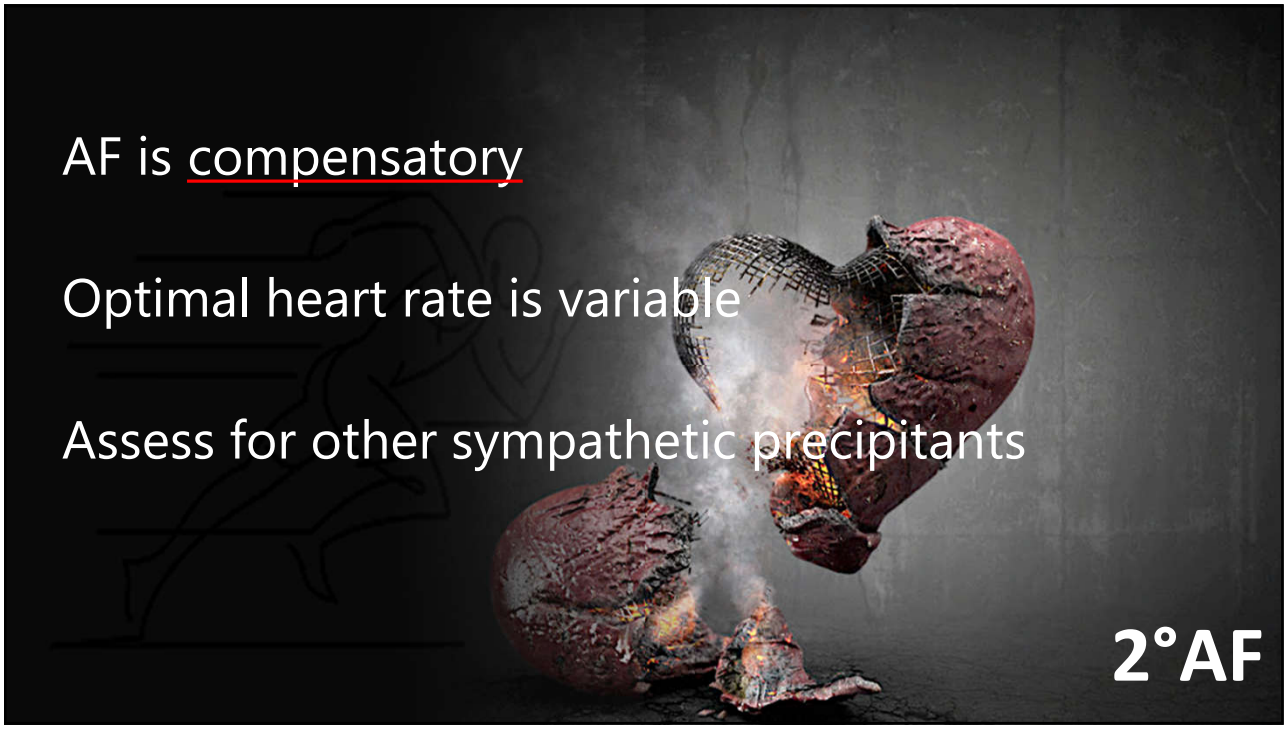
AF is compensatory
Optimal heart rate is variable
Assess for other sympathetic precipitants
2°AF

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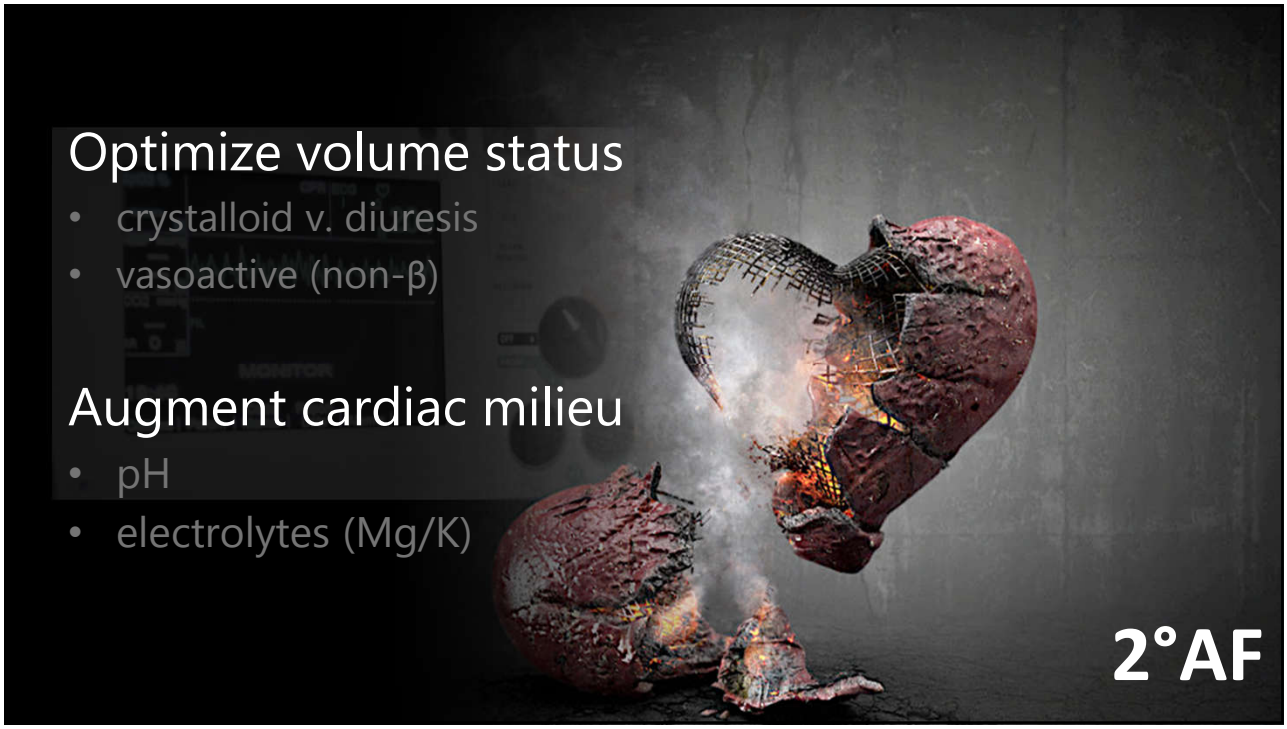
Optimize volume status
• crystalloid v. diuresis
• vasoactive (non-β)
Augment cardiac milieu
• pH
• electrolytes (Mg/K)
2°AF

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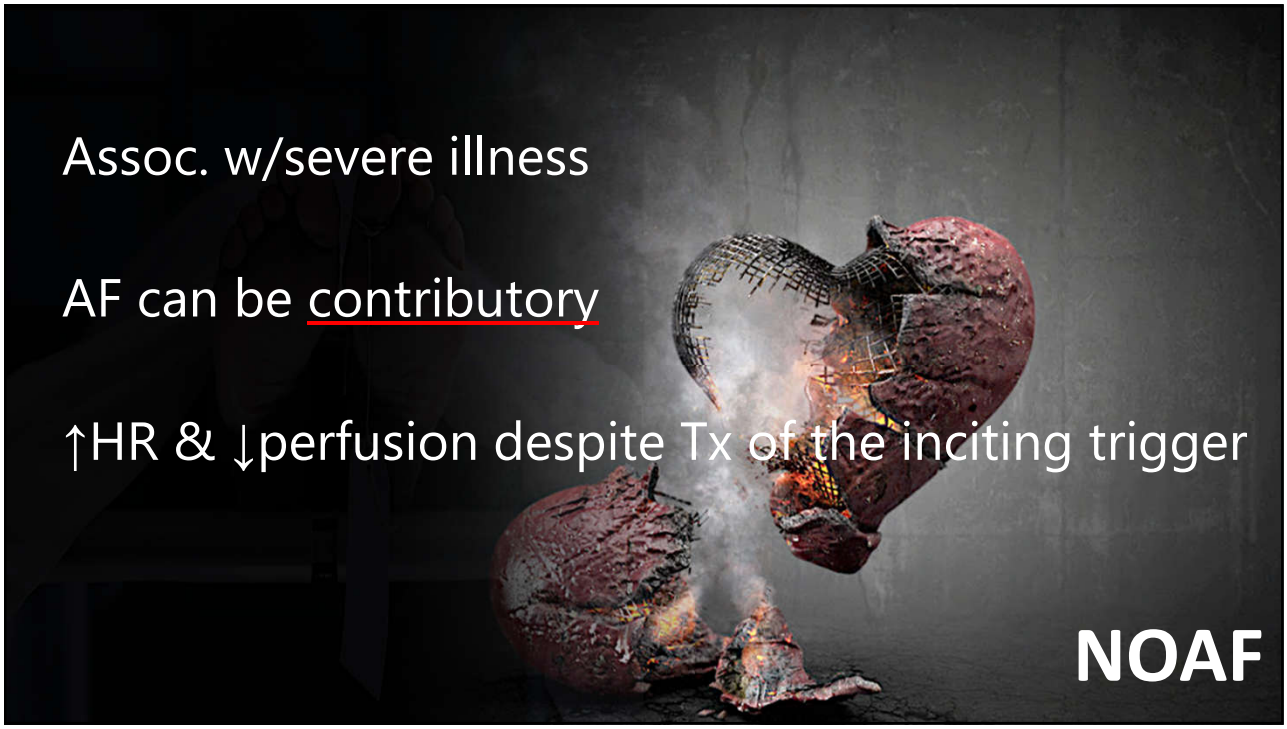
Assoc. w/severe illness
AF can be contributory
↑HR & ↓perfusion despite Tx of the inciting trigger
NOAF

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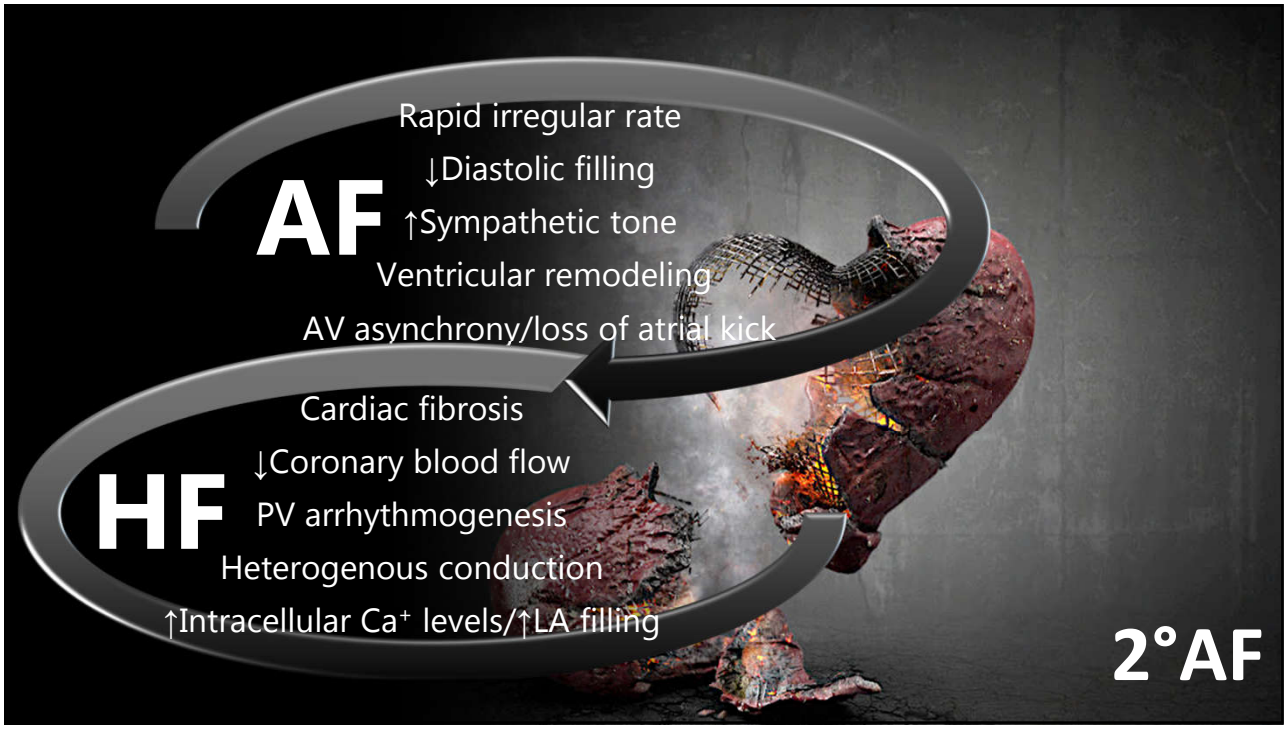
Rapid irregular rate
↓Diastolic filling
AF
↑Sympathetic tone
Ventricular remodeling
AV asynchrony/loss of atrial kick
Cardiac fibrosis
↓Coronary blood flow
HF
PV arrhythmogenesis
Heterogenous conduction
↑Intracellular Ca+ levels/↑LA filling
2°AF

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One Drug
To Rule Them
ALL
AAD

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Phenylephrine
Vasopressin
HYPO
Armamentarium
HYPER
Procainamide
Ibutilide
Mg
Dig
Amiodarone
Esmolol
Diltiazem

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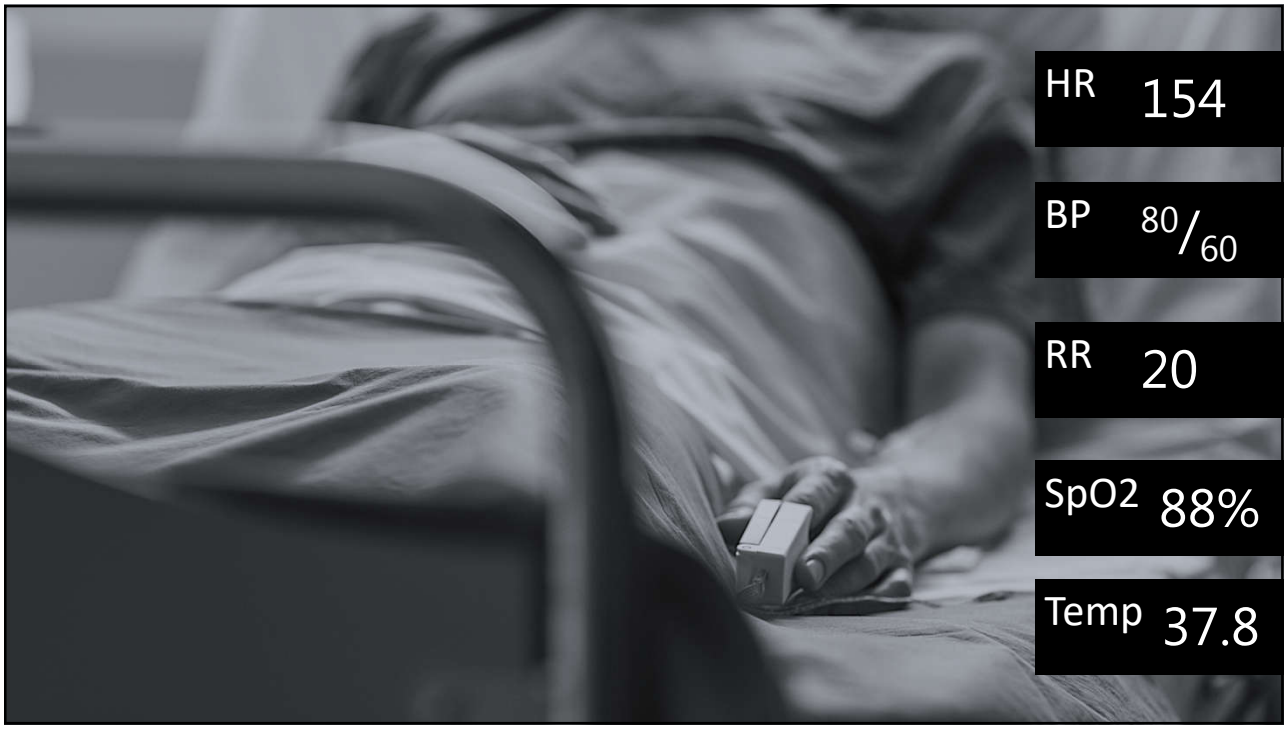

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CICU
SvO_2 ↓
Lactate↑
Milrinone
DC Home

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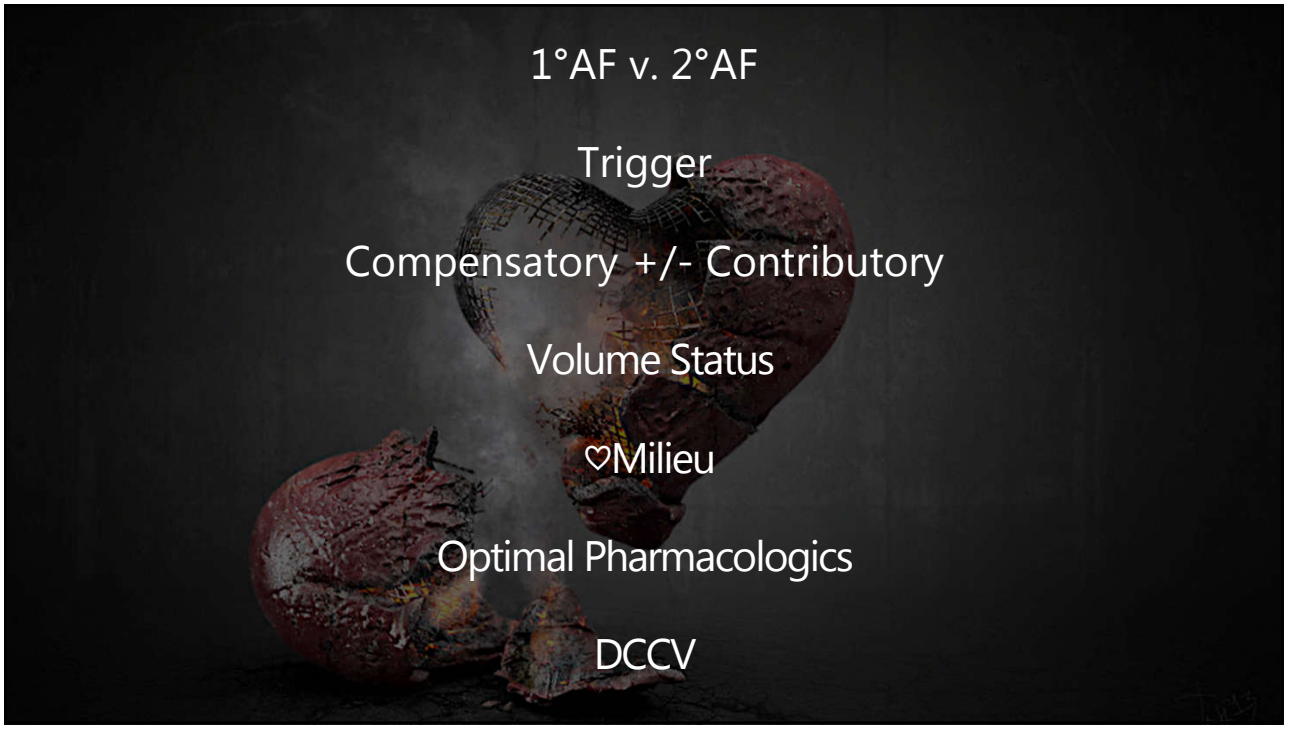
1°AF v. 2°AF
Trigger
Compensatory +/- Contributory
Volume Status
♡Milieu
Optimal Pharmacologics
DCCV

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Sick AF

	1˚ AF	2˚ AF
Heart Rate	>150-160	<150-160
Demographic	Acc. pathway/New-onset Structural ♡Dz *need atrial kick	Anyone Persistent/Permanent AF
Trigger	No	Yes
Management	Cardioversion DCCV Mg+AAD (CI/CIII)	Tx Trigger 1st & Optimize HDS If AF contributory Tx Mg+AAD Pretreatment ↑↑ DCCV success

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