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To Shock or Not? STEMI with Concurrent Fast AF During Thrombolysis; A Therapeutic Dilemma

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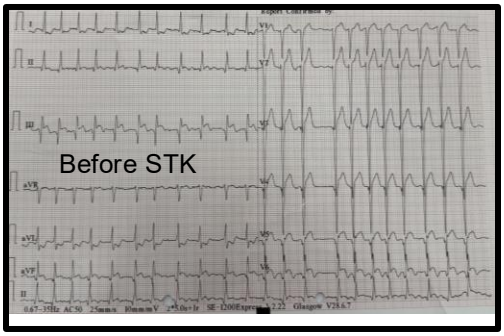
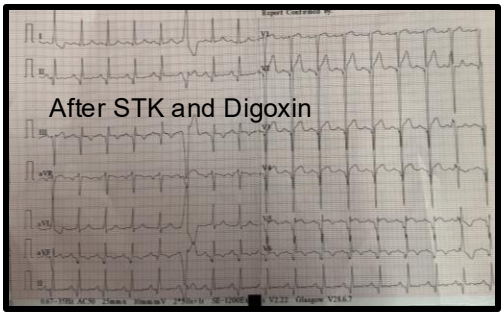
Introduction

Inferior STEMI is commonly associated with bradyarrhythmias due to AV nodal ischemia. However, fast AF with rapid ventricular response (RVR) is not common, posing a therapeutic dilemma during thrombolysis. Clinicians must balance synchronized cardioversion versus pharmacological rate control, while minimizing thromboembolic risks.





Case Description

A 50 y/o man with no comorbidities presented with central chest pain radiating to the left arm. Vitals: BP 140/60 mmHg, HR 150 bpm, SpO_2 99%. No reversible AF cause was identified. ECG showed inferior STEMI with AF with RVR rate of >140b/min. Thrombolysis with IV streptokinase and morphine were administered, leading to STE resolution, but AF with RVR >140 bpm and recurrent ischemic chest pain persisted. IV digoxin 0.5 mg was given. Heart rate gradually decreased, chest pain resolved, and sinus rhythm was restored within 2 hours.

Discussion

According to current AF guidelines, electrical cardioversion is indicated in unstable AF, which is altered mental status, hypotension, poor perfusion, ischemic chest pain, or heart failure. However, in concurrent STEMI, chest pain may reflect myocardial ischemia rather than just fast AF. Immediate synchronized cardioversion in this setting carries a risk of cardioembolism, especially during thrombolysis, as AF duration was unknown and the patient was not anticoagulated, posing a therapeutic dilemma.

Although AF often resolves post-reperfusion when ischemia is the trigger, this patient's AF with RVR persisted with ongoing chest pain. We optimized analgesia and chose pharmacological rate control over electrical cardioversion. Beta blockers were avoided due to hypotension risk in inferior STEMI with possible RV involvement. IV digoxin was used for rate control without compromising BP, offering positive inotropy. The rate slowed, and sinus rhythm returned spontaneously within hours, with concurrent resolution of chest pain indicating both ischemia and AF contributed to symptoms. This highlights the need for individualized management in STEMI with fast AF during thrombolysis.

Conclusion

This case shows that in fast AF with recurrent ischemic chest pain during thrombolysis, pharmacological rate control with digoxin can be considered when hemodynamics are stable. Although the chest pain suggested instability, rate control alone restored sinus rhythm and relieved symptoms. Synchronized cardioversion remains necessary if instability persists.

Key words: STEMI, Concurrent AF, Thrombolysis, rate vs rhythm control

References

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