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International Journal of Clinical Reports and Studies

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Short Communication

Inferior STEMI with Heart Block

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Received Date: March 22, 2024 | Accepted Date: June 19, 2024 | Published Date: July 26, 2024

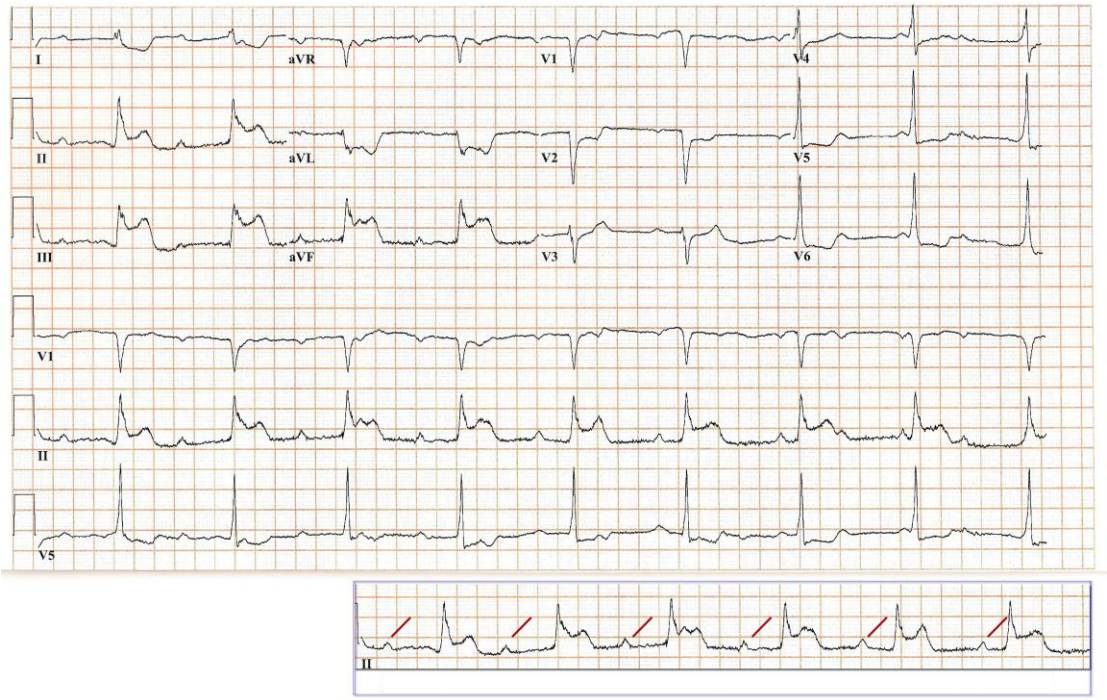
Citation: Keith Henry, Bradley Hernandez, (2024), Association of Inflation-related Stress with Depression and Anxiety among Older Adults, *International Journal of Clinical Reports and Studies*, 3(4); **DOI:**10.31579/2835-8295/059

Introduction

A 65-year-old male with history of poorly controlled hypertension a 40 pack/year smoking history presents to the Emergency Department with a description of "crushing" chest pain starting 30 minutes prior to presentation. His pain radiates to the neck and jaw. It is associated with shortness of breath, a feeling of anxiousness, and a profound sense of nausea. The patient denies a prior past medical history of similar pain. No prior history of coronary artery disease or myocardial infarction.

On initial evaluation, the patient appears moderately anxious, pale, and profoundly diaphoretic. His initial blood pressure is 165/96, heart rate 50 by palpation, respiratory rate 16, and oxygen saturations 98%.

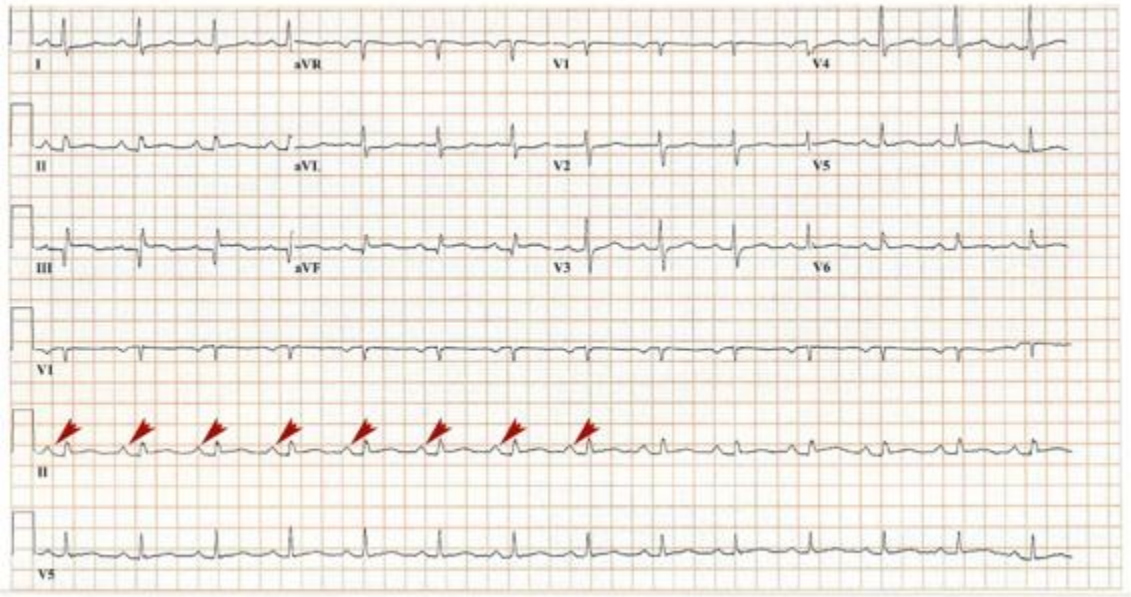
As he is placed on full cardiac monitors and IV access is established, his ECG was obtained.



12 Lead ECG with isolated lead II view. Red hash marks indicate atrio-ventricular dissociation in association with ST elevation.

Symptom management was initiated and the cardiac catheter lab was activated. The patient remained hemodynamically stable throughout his Emergency Department, Interventional, and Hospital course.

His immediate post interventional ECG was obtained.



Red arrows indicate resolution of 3rd degree AV block with resolution of inferior ST elevation MI status-post emergent PCI.

The patient received one stent in the mid RCA. He was started on a beta blocker and an ACE inhibitor. Lifestyle modification to include smoking cessation was discussed per routine. He was discharged on Hospital Day #3.

Discussion

In addition to an obvious inferior ST elevation myocardial infarction, a complete heart block was also recognized. Complete heart block is a common potential consequence of both inferior and anterior ST elevation myocardial infarction. This is based on redundant vascular distribution to the hearts electrical conduction system. The atrioventricular conduction system receives vascular distribution from the septal perforating arteries originating from the left anterior descending artery, and from the AV branch of the right coronary artery.

In the setting of an anterior AMI, 3rd degree heart block portends high morbidity and mortality. This is often secondary to necrosis of the conductive tissue within the AV node and septum. In contrast, 3rd degree heart block in the setting of an inferior AMI, as in the case of this

presentation, is often stable and resolves rapidly with definitive medical or interventional treatment. Early on, these blocks are often mediated by high vagal tone. Up to 20% of patients with an inferior STEMI will develop a 2nd or 3rd degree block. Sources cite 30% mortality when inferior wall AMI with 3rd degree block involves the right ventricle as opposed to 15% mortality in the face of an inferior wall AMI without right ventricular involvement.

Cases of symptomatic inferior wall AMI with 2nd and 3rd degree block often respond well to atropine and/or temporary pacing. The patient presented above required no such therapy and remained hemodynamically stable from the time of presentation to hospital discharge.

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