Prolonged QTc and Torsade de Pointes In The Setting of Methadone Use

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Background

Methadone is a mainstay in the treatment of opioid use disorder. QTc prolongation causing Torsade de Pointes (TdP) is an infrequent, but life-threatening complication of methadone use. However, the evidence supporting this notion is limited.

Case

A 58-year-old woman with heroin use disorder on methadone presented with shortness of breath. She became hypoxemic to the 80's and was found to have segmental pulmonary emboli (PE). Her potassium was 3.1 mmol/liter. Initial electrocardiogram (EKG) was notable for ventricular bigeminy with QTc of 657 milliseconds (Figure 1), which later degenerated into an accelerated junctional rhythm (AJR) with an episode of TdP with R on T phenomena.

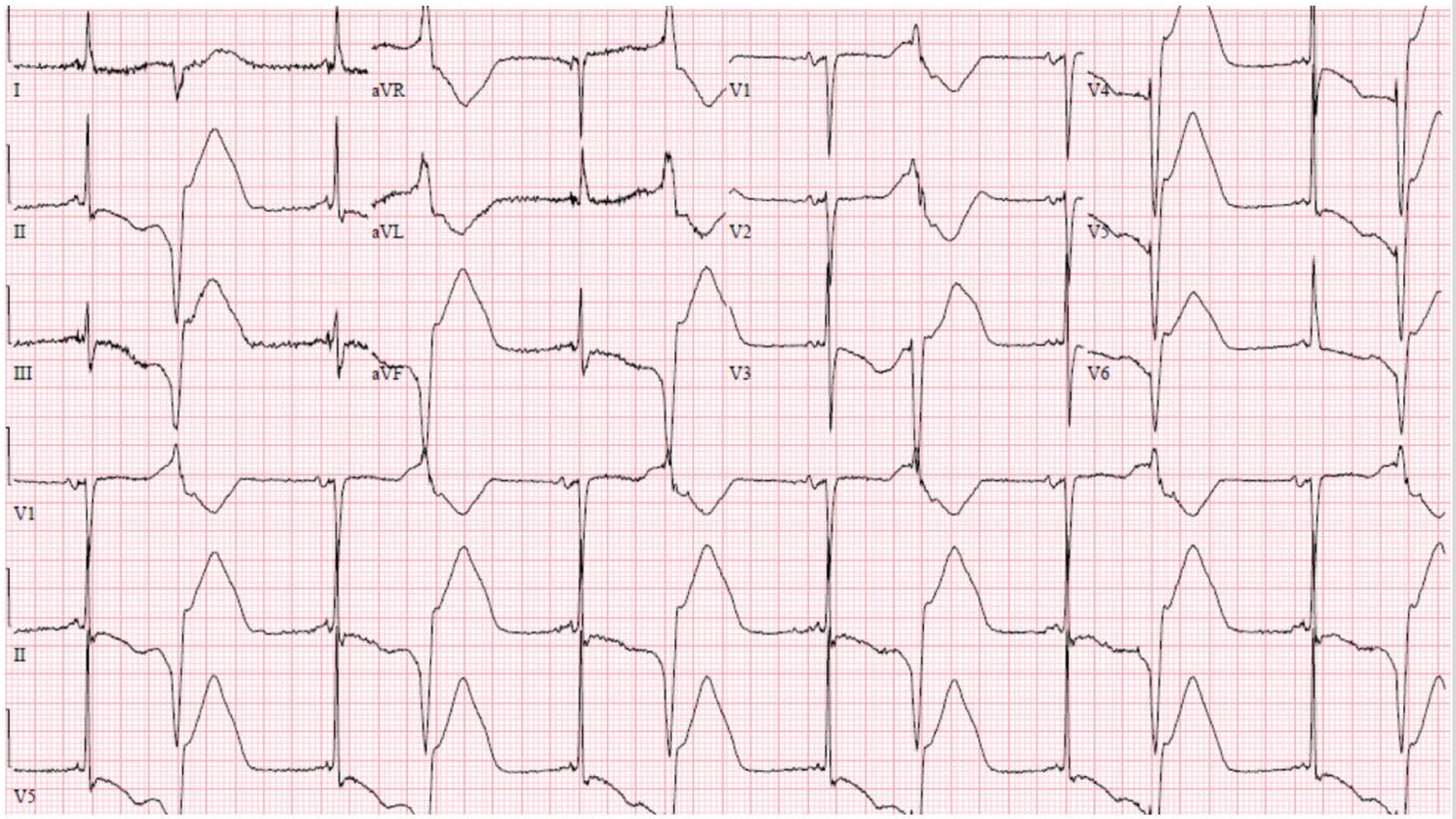

Figure 1: EKG showing ventricular bigeminy with QTc=657 msec.

Conclusion

Methadone can precipitate arrhythmia by prolonging QTc. Aggressive electrolyte repletion and mitigation of exacerbating factors like PE can minimize this. In patients on methadone, interval QTc monitoring with serial EKGs can prevent life-threatening TdP. Transitioning high risk patients to Suboxone can be life-saving.

Decision Making

Initially, she was started on a heparin drip for PE and later switched to Eliquis. Given loss of normal sinus rhythm (NSR) and evidence of TdP, she was transferred to the CCU for close monitoring. Central line was placed for aggressive repletion of potassium with return of NSR. Methadone was held and QTc eventually normalized after eight days, consistent with its half-life. Addiction Medicine was consulted, and the patient was discharged with Suboxone as an outpatient.

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