

Clinical Setting: 44 y M with a history of alcohol use disorder presents with confusion.

HR - 78

BP - 155/64

RR - 14

SpO<sub>2</sub> - 97%

Temp - 98.5

This is a case of **Sympathetic T Waves secondary to Thiamine deficiency from Wernicke's/Alcohol use.**

This was an "expert level" EKG that I found on twitter via the fantastic Tony Breu (@tony\_breu). I'll confess that I would have no idea this was a thing, except for his fantastic 'tweetorial' on it.

[See his tweetorial here!](#)

So this EKG looks very similar to last weeks EKG - deep inverted and massive T waves. However, this EKG gets at the reason for the appearance of these T waves in CNS catastrophe's and stress cardiomyopathy. The suspected etiology of the ECG changes involves abnormal hypothalamic sympathetic signaling to the heart. This helps explain why both stress/Takotsubo and CNS catastrophes have similar cardiac manifestations, both on EKG and on ECHO. Basically, you have neuronally mediated release of catecholamines directly on cardiac myocytes. In this patient, thiamine deficiency led to edema of the thalamus and hypothalamus, and increased sympathetic release directly to myocardium.