Brugada Syndrome mimicking acute STEMI

Introduction: The prevalence of type-1 Brugada pattern has been reported to be between 1.8-4.0% in endemic north-eastern region of Thailand. Many abnormalities, including hypercalcemia is known to cause ECG changes mimicking Brugada pattern. We are reporting a case of Brugada syndrome with hypercalcemia mimicking acute STEMI.

Methods:

Result: Case presentation: A case of a 63-year-old Thai male, known case of squamous cell carcinoma stage IV, complained of acute chest discomfort. His initial electrocardiogram (ECG) revealed sinus tachycardia, ST elevation in V1-3 and aVR, ST depression in all other leads, short ST-segment and inverted T wave, the diagnosis of left main artery occlusion was entertained. He was initially treated as acute coronary syndrome and was sent for coronary angiogram, which revealed no significant coronary stenosis. Blood was sent for electrolyte imbalances which could be the cause of the ST elevation ECG pattern. Initial blood tests revealed high levels of calcium (20 mg/dL) which can explain the diffuse ST elevation. He was diagnosed with hypercalcemia and treated with dialysis. Post-dialysis calcium levels started to slowly normalize and his follow up ECG the next day showed improvements of previous ST elevation and depression. However, the elevated ST-segment leads (V1-2) and the biphasic V3 still remained, supporting true underlying Brugada syndrome in this patient.

Conclusion: Brugada syndrome is known to mimic STEMI. Hypercalcemia, is known to cause Brugada pattern on an ECG. We reported a case of Brugada syndrome made to be more pronounced by serum hypercalcemia to mimic a STEMI. If patients at risk of hypercalcemia present with ST elevation in V1-3 then STEMI, hypercalcemia and Brugada syndrome or a combination of them, should be considered and managed accordingly.