Hypothermia with J (Osborne) waves

Hypothermia With J (Osborne) Waves

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A 40-year-old woman was found unconscious outside on a bitterly cold day; her body temperature was 83°F. She was never able to provide a coherent history. J (Osborne) waves are seen at the QRS-T junctions, especially in leads II, III, aVF, and V_2 –V_6 (arrows).

Osborne waves are characteristic of deep hypothermia, whether accidental (as seen here) or medically induced, in both humans and animals. A similar configuration may occur in severe hypercalcemia, nervous system disorders, and other conditions. Hypothermia affects both depolarization and repolarization, and the QT interval is prolonged. The mechanism of production of J waves is poorly understood, but they may be related to the transmural potential gradient at the onset of repolarization, which has been seen in vitro. J-wave size has been related to the degree of hypothermia.

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