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Prominent J wave in a patient with hypothermia and medullary shock: Osborn wave

Onda J prominente en un paciente con hipotermia y shock medular: Onda de Osborn

Juan A. Luzuriaga Navas[1], MD; Otilia L. Navia Intriago[2], MD; Marcelo V. Puga Bravo[2]✉, MD; and Yisel Gallardo Medina[2], MD

[1] Emergency Department and Intensive Care Unit. Hospital Universitario Dr. Miguel Enríquez. Havana, Cuba.
[2] Cardiology Department. Instituto de Cardiología y Cirugía Cardiovascular. Havana, Cuba.

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A 44-year-old man, with a history of apparent good health, was admitted at the Intensive Care Unit after a recovered cardiorespiratory arrest, related to a medullary shock (spine and spinal cord trauma level C_6-C_7), plus marked hypothermia. In the 12-lead electrocardiogram (**Figure 1**)were observed a cardiac frequency of 35 beats per minute, with an elevation of the J point and convex ST-segment elevation in I, II, III, V_3, V_4, V_5 y V_6. It is interpreted as prominent J waves secondary to hypothermia (or Osborn wave), which may manifest diffusely in all leads or to be confined to specific ones. The pathophysiology of the J wave is explained by an alteration in the ionic currents of potassium (I_{to}), and it is also presented in other contexts, for which we must differentiate the following electrocardiographic patterns:

1. Brugada sign: The type 1 or convex pattern (**Figure 2A**)shows a characteristic morphology, and rarely, that the appearance of J waves in an episode or hypothermia simulates this pattern. In this specific case, there is observed a J point elevation greater than 2mm with convex elevation of the ST-segment in V_3 and flattened T wave; however, when compared to the type 1 pattern, clear differences are perceived, besides, the presence of the type 1 pattern isolated in V_3 is infrequent.
2. Early repolarization pattern: As outlined in **figure 2B**, in order to identify this pattern, the peak of the J wave must not exceed 50% of the R, thus, also the J wave must rest entirely on the baseline. The lines added in the **figure 1** show how these criteria are absent from the electrocardiogram presented: the upper and lower red lines indicate 50% of the R wave and the electrocardiographic baseline respectively; the blue arrows going up indicate the relationship between the peak of the J wave and the middle portion of the R; and down, the relation between the beginning, and the end of the J wave and the baseline.
3. The acute myocardial infarction with ST-segment elevation: this option should be ruled out above all on the basis of the absence of compatible clini-

✉ *MV Puga Bravo*
Instituto de Cardiología y Cirugía Cardiovascular.
Calle 17 Nº 702, Vedado, CP 10400. La Habana, Cuba.
E-mail address: marcelopuga@hotmail.es

cal characteristics. Electrically, this diagnosis loses its value due to the atypical morphology of the ST elevation, as well as the involvement of two territories (inferior and anterolateral wall) at the same time, resulting rare.

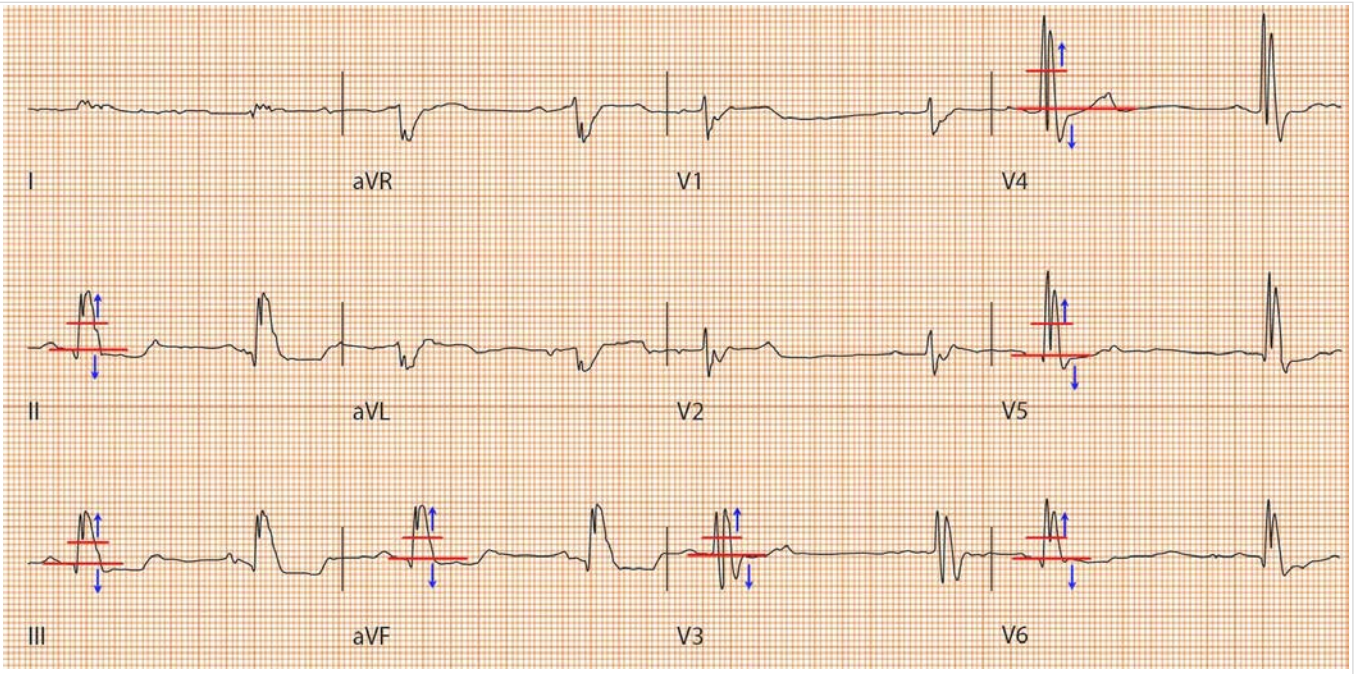

Figure 1

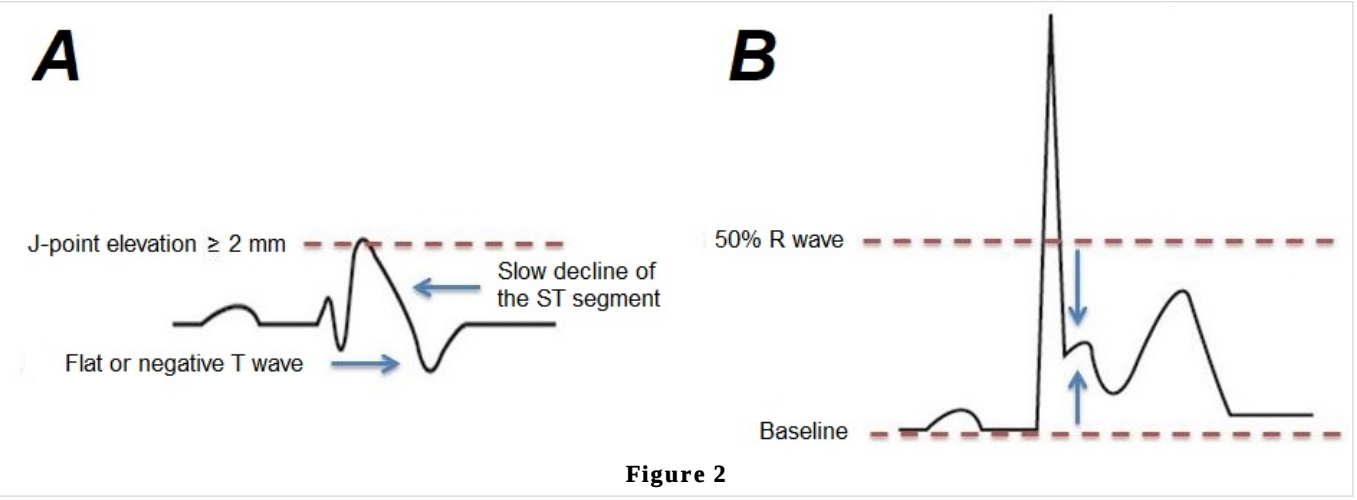

Figure 2