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PHOTO QUIZ

Sine waves

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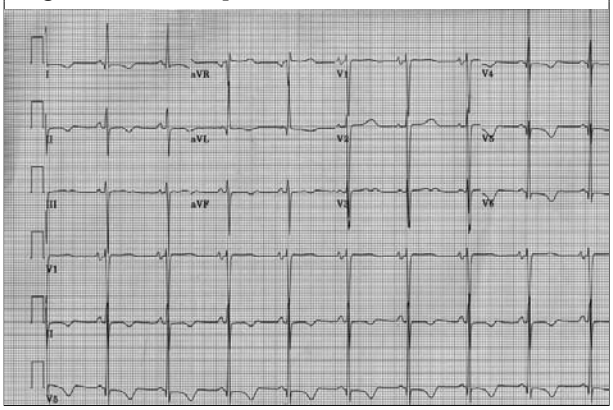
A 42-year-old African-American man, with AIDS (CD4 count 374), Hepatitis B virus infection and end-stage renal disease on regular dialysis three times per week, presented to the emergency centre with profound weakness for the past 24 hours. Upon review, the patient admitted to having missed his last two dialysis appointments. An ECG was obtained and the result is presented in *figure 1*. The patient was treated with intravenous calcium chloride, insulin, dextrose and bicarbonate. His serum potassium level was 8.9 mEq/l. The patient was admitted to the Medical ICU and urgently dialysed. His serum potassium corrected to 4.3. A postdialysis ECG is shown in *figure 2*.

WHAT IS YOUR DIAGNOSIS?

See page 155 for the answer to this photo quiz.

Figure 1. *Wide-complex tachycardia with sine waves*

Figure 2. *Post-dialysis ECG*



ANSWER TO PHOTO QUIZ (ON PAGE 153)

SINE WAVES

ECG findings with hyperkalaemia are well described in the literature. When the potassium level is between 5.5 and 6.5 mEq/l, large-amplitude T waves may be seen. PR prolongation, P-wave flattening or disappearance, QRS-complex widening, and conduction blocks with escape beats are typical findings, which may be associated with a potassium level of 6.5 to 8.0 mEq/l. Sine-wave appearance is an ominous ECG finding which precedes ventricular fibrillation. Usually sine waves correlate with a potassium level >8.0 mEq/l. It should be emphasised that hyperkalaemia may present with minimal ECG changes.[1]

REFERENCE

1. Mattu A, Brady WJ, Robinson DA. Electrocardiographic manifestations of hyperkalemia. Am J Emerg Med 2000;18:721-9.