

## QUIZ

## The EKG Quiz: “Good or Bad”

**Fathi I. Ali**

Department of Medicine, Division of Cardiology, Vanderbilt University, Nashville, TN, USA

Email: [fathi.i.ali@vanderbilt.edu](mailto:fathi.i.ali@vanderbilt.edu)

Published: 02 September 2010

Ibnosina Journal of Medicine and Biomedical Sciences 2010, 2(5):210-211

Received: 30 July 2010

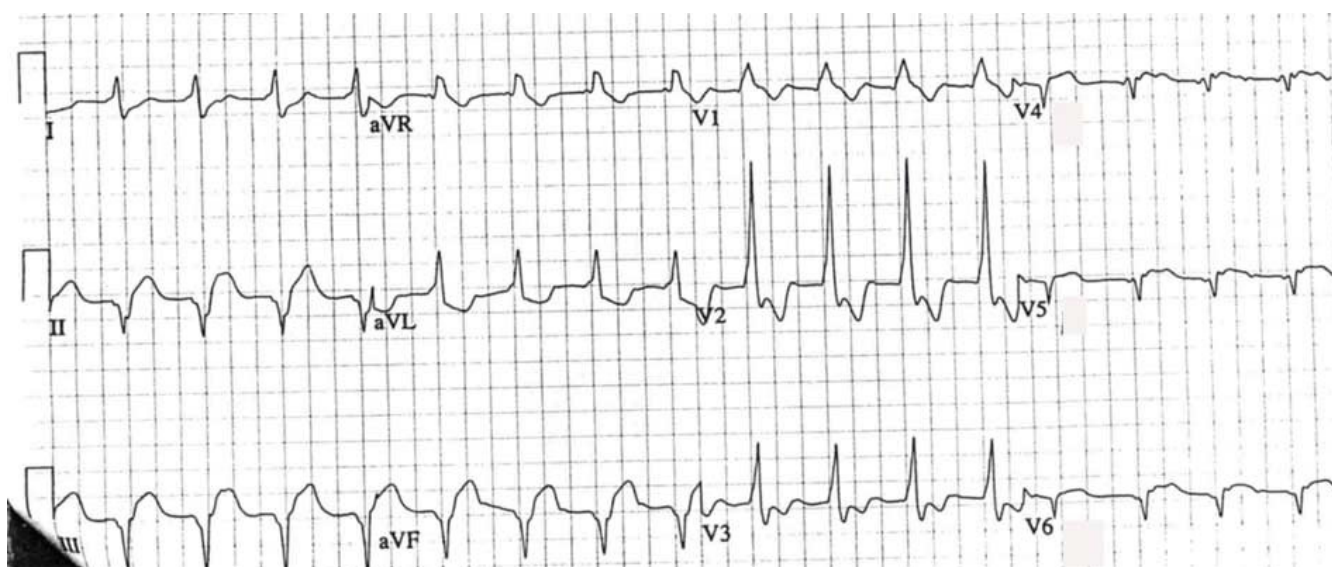
Accepted: 25 August 2010

This article is available from: <http://www.ijmbs.org>

This is an Open Access article distributed under the terms of the Creative Commons Attribution 3.0 License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### History:

A 65-year-old man admitted to CCU with severe chest pain. When this EKG was taken the patient was “pain-free” and hemodynamically stable.



## Questions

1. What is the interpretation of the EKG?
2. What is the clinical implication of this rhythm?
3. How to treat this rhythm?

## Answers

1. This EKG shows an accelerated idioventricular rhythm with concomitant inferior ST segment elevation.
2. It is a reperfusion arrhythmia; typically indicating establishment of an antegrade flow in the culprit coronary artery. In the context of MI, it is a good news!
3. No treatment is necessary.

## Discussion

The tracing shows a relatively wide QRS rhythm at a rate of 100 bpm. There are no discernable P waves seen. It is tempting to call the slight little inflections before the QRS complex in lead aVR P waves; however, if you compared them to the concomitant beats in leads aVL and aVF, they seem to be part of the QRS complex. This is essentially a ventricular rhythm. The rate is not as slow as what we see in the “escape” ventricular rhythm (which is usually in the 20-40’s) and is not as fast as in typical VT; hence this rhythm is labeled “Accelerated Idioventricular Rhythm” or AIVR. In a sense, this is a “Slow VT.”

The postulated mechanism of AIVR is an enhanced automaticity in His-Purkinje fibers and/or the myocardium. When the enhanced automaticity in His-Purkinje fiber or myocardium exceeds that of the sinus node, it becomes the dominant rhythm of the heart. This is particularly true when there is associated sinus bradycardia. The QRS complex is typically not very wide, probably because the site of origin of this arrhythmia is at or near His-Purkinje system. Other electrocardiographic features of VT (e.g., fusion beats, capture beats, etc.) may all be seen.

AIVR is typically seen in acute coronary syndrome after coronary perfusion is established, i.e., it is a reperfusion arrhythmia; however, it can be seen in other conditions too. In this EKG, you can notice that there is some ST elevation in the inferior lead. In fact, this patient presented with an inferior STEMI and was given thrombolytic therapy before admission to CCU.

This rhythm is usually a good news, and it *does not* need to be treated. It usually resolves spontaneously and does not

carry any adverse prognostic significance.