Accelerated idioventricular rhythm (AIVR) is a ventricular rhythm consisting of three or more consecutive monomorphic beats, with gradual onset and gradual termination. AIVR is usually seen during acute myocardial infarction reperfusion (following thrombolytic therapy or percutaneous coronary intervention), and rarely manifests in patients with completely normal hearts or with structural heart disease. As percutaneous coronary intervention has become a more common treatment for patients presenting with acute myocardial infarction (versus thrombolytic therapy), the observation of AIVR by Emergency Department physicians has become less common than it was during the thrombolytic era. AIVR has also been associated with several drugs (eg, halothane, aconitine, desflurane, cocaine, and digitalis), electrolyte imbalances (eg, hypo- and hyperkalemia), cardiomyopathies, and during the postresuscitation period following cardiac arrest.

Electrocardiogram characteristics of AIVR include a regular rhythm, 3 or more ventricular complexes with QRS complex > 120 milliseconds, a ventricular rate between 50 beats/min and 110 beats/min, and occasional fusion or capture beats. This rhythm has two postulated, possibly coexisting causes. First, the sinoatrial or atrioventricular node may suffer structural damage with depression of nodal automaticity potentiated by enhanced vagal tone. Second, an abnormal ectopic focus within the ventricle may assume the role of dominant pacemaker. The ventricular ectopic focus manifests when the sinus rate slows down (below the ectopic focus) or when the ectopic focus accelerates above the intrinsic rate by 30 beats/min to 40 beats/min. When both discharge rates (sinus and ectopic focus) are similar, isorhythmic dissociation, fusion beats, and capture beats can be seen.

AIVR is usually a benign and well-tolerated arrhythmia. Most cases of AIVR will require no immediate treatment for this dysrhythmia, because AIVR is usually self-limiting and resolves when the sinus rate exceeds that of the ventricular...
foci. Administration of antiarrhythmics to patients with AIVR may cause precipitous hemodynamic deterioration and should be avoided. In cases of AIVR, remember to treat the underlying cause: For example, restore myocardial perfusion (thrombolysis or percutaneous coronary intervention), or correct electrolyte abnormalities. Patients with low cardiac output states (eg, severe biventricular failure) may benefit from restoration of atrioventricular synchrony to restore atrial kick. In cases of low cardiac output associated with AIVR, atropine may be used in an attempt to increase sinus rate and atrioventricular conduction.

Disclosure Statement
The author(s) have no conflicts of interest to disclose.

References

The Law of the Heart
The law of the heart is thus the same as the law of muscular tissue generally, that the energy of contraction, however measured, is a function of the length of the muscle fibre.

— Ernest Henry Starling, 1866-1927, British physiologist