

The denomination Early Repolarization Pattern and the semantic concepts - 2010

Dr. Andrés R. Pérez Riera

Aristotle (384 BC – 322 BC) was a Greek philosopher, a student of Plato and teacher of Alexander the Great.

His writings cover many subjects, including physics, metaphysics, poetry, theater, music, logic, rhetoric, politics, government, ethics, biology, and zoology. Together with Plato and Socrates (Plato's teacher), Aristotle is one of the most important founding figures in Western philosophy. Aristotle proposed in his short work, *The Categories*, *that a definition is a statement of a thing's essential nature, and the essence of a thing are those of its properties that cannot change without losing its identity.*

But Aristotle was not faced with the flux of new information that confronts modern medicine.

Nowadays, the argot of a discipline arises organically at the intersection of a given state of empiric knowledge and the exigencies of present scientific discourse.

The term "early repolarization" is not appropriate because it's meaningless. Repolarization in the ventricular myocardium *begins almost immediately with QRS onset.*

The denomination Early Repolarization Syndrome (ERS¹) is not correct if we define syndrome as a group of symptoms that collectively indicate or characterize a disease, psychological disorder, or other abnormal condition, or a complex of symptoms indicating the existence of an undesirable condition or quality.

However, there is a third meaning of the term that could make the denomination of syndrome appropriate: a distinctive or

characteristic pattern of behavior. A syndrome is a characteristic ECG pattern, and its behavior always or nearly always has a benign course.

We do not think the denomination Benign Early Repolarization (BER²) is appropriate neither, because it indicates a type of given clinical evolution, and recent studies have cast a doubt about whether this electrocardiographic pattern is really benign. ERV may not always be benign and it can become a substrate for ventricular arrhythmias, sudden cardiac death (SCD), and hypercontractility cardiomyopathy in certain subjects, including certain high-performance athletes. Athletes with symptoms of syncope, especially in exertion, warrant a complete evaluation. The treatment of athletes and other individuals with life-threatening ventricular arrhythmias has been revolutionized by the implantable cardioverter defibrillator (ICD), a device that offers excellent protection from SCD.

Defining those athletes who would benefit from an ICD is not always clear. Furthermore, participation in competitive athletics for athletes with life-threatening arrhythmias or structural heart disease known to put the athlete at risk for life-threatening arrhythmias is usually prohibited³. Additionally ERV probably represents part of a spectrum of cardiovascular anomalies related to nonischemic ST elevation, including Brugada syndrome, and that it may also have a molecular genetic origin of variable penetrance⁴.

The denomination Early Repolarization Pattern⁵ is correct, since it indicates that it is characterized by a given electrocardiographic pattern.

Therefore, we believe that the most appropriate denominations are Early Repolarization Variant⁶ or Early Repolarization Pattern, because both refer to the existence of a given electrocardiographic variant or pattern.

Related to the newest classification

References

- 1) Gussak I, Antzelevitch C. Early repolarization syndrome: Clinical characteristics and possible cellular and ionic mechanisms. *J Electrocardiol.* 2000; 33: 299-309.
- 2) Brady WJ, Chan TC. Electrocardiographic manifestations: benign early repolarization. *J Emerg Med.* 1999; 17:473-478.
- 3) Link MS, Wang PJ, Estes NA 3rd. Ventricular arrhythmias in the athlete. *Curr Opin Cardiol* 2001; 16:30-39.
- 4) Boineau JP. The early repolarization variant--normal or a marker of heart disease in certain subjects. *J Electrocardiol.* 2007; 40: 3.e11-16.
- 5) Nam GB, Ko KH, Kim J, Park KM, Rhee KS, Choi KJ, Kim YH, Antzelevitch C. Mode of onset of ventricular fibrillation in patients with early repolarization pattern vs. Brugada syndrome. *Eur Heart J.* 2010 Feb;31(3):330-9.
- 6) Riera AR, Uchida AH, Schapachnik E, Dubner S, Zhang L, Celso Ferreira Filho, Ferreira C. Early repolarization variant: epidemiological aspects, mechanism, and differential diagnosis. *Cardiol J.* 2008;15:4-16.