



Beth Israel Deaconess  
Medical Center



## **Novel Software Method to Differentiate Benign from Ischemia-induced Precordial T-Wave Inversions (BID 817)**

**Inventors:** Alexei Shvilkin, MD and Mark E. Josephson, MD

### **Background:**

The differential diagnosis of precordial T-wave inversions (TWI) poses a significant clinical challenge. Precordial TWI has a wide range of etiologies, from a normal variant to hypertrophic cardiomyopathy, and life-threatening myocardial ischemia. Because of the difficulty in distinguishing between the causes of TWI, many physicians, upon seeing TWI, are compelled to perform expensive catheterizations, angiograms, hospital admissions, time-consuming and costly evaluations to rule out ischemia.

### **Invention:**

The method identifies the criteria necessary to differentiate between the benign pacing-induced cardiac memory-related TWIs and TWIs that result from ischemia and infarction. Cardiac memory is usually exhibited when a heart is paced for some period of time, and then the pacing is stopped. Frequently, the T-wave following the pacing appears inverted. A similar TWI effect is frequently observed in ischemic patients. The inventors discovered that cardiac memory resulting from right ventricular pacing has a frontal T-vector direction different from that of anterior ischemic TWI, thereby enabling discrimination between the two.

### **Commercial Opportunity:**

This technology can be used to improve the computer-assisted ECG analysis in commercial packages such as 12SL algorithm, GRI, or similar software.

### **Competitive advantage:**

Improved discrimination between ischemic and non-ischemic TWI will potentially reduce the number of expensive, risk-associated catheterizations, angiograms, and hospital admissions.

### **Patent Status:**

US patents issued and pending; Foreign applications pending.

### **Publication:**

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