

## **Increased Incident of Arrhythmic Events in Patients with Implanted Cardiac Defibrillators after the East Azarbaijan Earthquake**

**Short title:** Arrhythmias after East Azarbaijan Earthquake

**Authors:** Fariborz Akbarzadeh <sup>1</sup>, M.D.; Fatemeh Ranjbar <sup>2</sup> M.D.; Babak Kazemi <sup>1</sup>,  
M.D.; Abdolmohammad Ranjbar <sup>1</sup>, M.D.

**Affiliation:**

1. Cardiovascular Research Center, Tabriz University of Medical Sciences,  
Tabriz, Iran.

2. Psychiatry Department, Faculty of Medicine, Tabriz University of Medical  
Sciences, Tabriz, Iran

**Correspondence and reprint request to:** Babak Kazemi M.D., Cardiovascular  
Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

**Phone: Fax:** +98(411)3344021

**E-mail:** [bkazemia1966@gmail.com](mailto:bkazemia1966@gmail.com)

**Abstract:**

**Background:** There are few studies on arrhythmia incidence before and after a natural disaster in patients with implanted cardiac defibrillators (ICD). Accordingly, we applied this technology to study the type and pattern of arrhythmic events following the 2012 Earthquake among patients implanted with ICDs within East Azarbaijan province.

**Methods:** One hundred and thirty two patients were included in the study and were divided into two groups according to the region of residence: earthquake (n= 98) vs. non-earthquake (n= 34) areas. Data for only those meeting standard criteria for sustained ventricular arrhythmias (VAs), or supraventricular tachycardias (SVTs) and triggered ICD therapies, either shock or anti-tachycardia pacing (ATP) were included. The state version of the State-Trait Anxiety Inventory (STAI) was used to assess general symptoms of anxiety in both groups.

**Results:** The frequency of patients with sustained VAs increased significantly after the earthquake ( $p= 0.008$ ). There were more VAs (mean 2.16 vs. 6.23;  $p=0.008$ ) and they occurred earlier (6<sup>th</sup> vs. 16<sup>th</sup> day;  $p= 0.01$ ) in the earthquake area. The mean frequency of SVTs and the total number of delivered ICD therapies were similar between groups. Differences in anxiety levels were not significant between groups but there was a trend for presence of greater number of patients with anxiety ( $P= 0.07$ ) and the relative severity of anxiety ( $P= 0.08$ ) in the earthquake area.

**Conclusions:** The mean frequency of VAs increased and they occurred earlier in the earthquake area. The stress of anxiety might have served as a trigger for these events.

**Key words:** earthquake; anxiety; ventricular arrhythmias; implantable defibrillators.