Scared to Death

To the Editor:

The case report by Brandspiegel et al1 and the subsequent letter to the editor by Watkins and Blumenthal2 both demonstrated conclusively a relationship between a stressful event and a transient compromise of coronary perfusion. That a person could be “worried to death”2 has a parallel example in people being “scared to death.”

The Los Angeles, Calif, earthquake on January 17, 1994, at 4:31 AM provided an unusual opportunity to study features of the relation between emotional stress and the triggering of sudden cardiac death (SCD), as was reported by Leor et al.3 They found that on the day of the earthquake there was a sharp increase in the number of SCDs, from a daily average of 4.6±2.1 in the preceding week to 24 on the day of the earthquake. They further noted that during the 6 days after the earthquake, the number of SCDs declined to below the baseline value, to an average of 2.7±1.2 per day.

As Muller and Verrier4 pointed out in the accompanying editorial, there are several mechanisms by which an earthquake may trigger SCD. In some cases, the psychological stress may produce transient risk factors (hemodynamic, prothrombotic, and vasoconstrictive forces) that lead to the disruption of a vulnerable atherosclerotic plaque, with subsequent thrombotic occlusion that produces a fatal cardiac arrhythmia. In other cases, SCD without an occlusive thrombus could result from coronary vasospasm, from reperfusion arrhythmia due to the dislodgment of thrombus and the release of profibrillatory byproducts, or from primary ventricular fibrillation due to the centrally mediated release of catecholamines. Fear lowers the threshold for arrhythmia in the normal heart and triples the incidence of ventricular fibrillation during ischemia. Since the Los Angeles earthquake occurred early in the morning, abrupt awakening, possibly from rapid-eye-movement sleep, may have increased the likelihood of fatal arrhythmia.

Tragic as they were, the series of serious earthquakes that occurred around the world in a 5-week period in 1999—Turkey on August 17, 1999, at 3:01 AM, Greece on September 7, 1999, at 2:56 PM, and Taiwan on September 21, 1999, at 1:45 AM—would provide further insight into the old saying of “being scared to death.” Muller et al5 found significantly higher incidences of myocardial infarction, ventricular tachyarrhythmias, and SCD in the morning hours than at other times of day and have suggested that these events may be triggered by increases in adrenergic activity, heart rate, systemic blood pressure, and blood coagulability that occur in the morning. Therefore, data from these countries would be of immense clinical importance, because they may provide a reasonable strategy to prevent SCD by medically interrupting the linkage between the inevitable exposure to potential triggers—rare earthquakes or the more frequent stressful events of everyday life—and the catastrophe of SCD.

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