2011年の地震後に心不全のピークが持続

2011年の地震と津波の後に短期および中期の心血管系への影響がピークに達した

Incidence of short- and mid-term cardiovascular effects rise with the seismic peak following 2011 earthquake and tsunami

2011年3月に日本を襲った巨大地震後の有意かつ持続性の心不全発生の増加が2012年European Society of Cardiology学会で報告された。このような出来事の後に心不全発生のピークが持続していることが報告されたことはかつてない。スタディでは、宮城県における2008～2011年の3月11日の前4週間および後16週間の救急搬送記録全例（124,152件）を調査した。震災前、中、および後の発生記録を比較し、余震の数を計算し記録した。その結果、地震後6週間は余震が頻回に起き、2番目のピークは2011年4月7日の大きな余震として記録された。過去3年間と比較し、心不全および肺炎発生の有意な増加は津波襲来のあと6週間以上着実に持続した。一方、脳卒中および心肺停止の増加は初回および余震ピークのパターンに追随した。急性冠症候群および心肺停止発生の急激な増加は、その後急激かつ有意に減少した。このスタディ結果は*European Heart Journal*オンライン版に同時に掲載された。

Full Text

The Japanese earthquake and tsunami of 11 March 2011, which hit the north-east coast of Japan with a magnitude of 9.0 on the Richter scale, was one of the largest ocean-trench earthquakes ever recorded in Japan. The tsunami caused huge damage, including 15,861 dead and 3018 missing persons, and, as of 6 June 2012, 388,783 destroyed homes.

Following an investigation of the ambulance records made by doctors in the Miyagi prefecture, close to the epicenter of the earthquake and where the damage was greatest, cardiologist Dr. Hiroaki Shimokawa and colleagues from the Tohoku University Graduate School of Medicine at Sendai, Japan, found that the weekly occurrence of five conditions - heart failure, acute coronary syndrome (including unstable angina and acute MI), stroke, cardio-pulmonary arrest and pneumonia - all increased sharply soon after the earthquake occurred.

Such reactions - in ACS, stroke and pulmonary embolism - have been reported before, said Dr. Shimokawa, in Japan, China and the USA. However, these studies reported only the short-term occurrence of individual CVD events, and the mid-term CVD effects of such great earthquakes remain to be elucidated. To this end, the study examined all ambulance transport records in the Miyagi prefecture from 11 February to 30 June for each year from 2008 to 2011 (ie, four weeks before to 16 weeks after 11 March, a total of 124,152 records). Incidence records from before, during and after the earthquake disaster were compared, the aftershocks counted and recorded according to a seismic intensity of 1 or greater.

The number of aftershocks in the Miyagi prefecture was frequent during the six weeks after the earthquake, and the second peak was noted as a large aftershock on 7 April 2011 (magnitude of 7.0). Compared with the previous three years, the significant increases in the occurrence of heart failure and pneumonia were steadily prolonged for more than six weeks after the tsunami struck. On the other hand, the incident increases in stroke and cardio-pulmonary arrest followed the pattern of the first and aftershock seismic peaks. The rapid increases in the occurrence of acute coronary syndromes and cardio-pulmonary arrest was followed by a sharp and significant decline. Interestingly, said Dr. Shimokawa, age, sex or residence area did not significantly affect the occurrences of CVD during or following the tsunami.

"To the best of our knowledge," he added, "this is the first report to describe the mid-term course of major cardiovascular events and pneumonia after a great earthquake in a large population. In particular, our findings provide the first evidence that the incidence of heart failure was markedly increased over a long period afterwards." Prevalence of pneumonia, a well-known risk factor for deteriorating heart failure, was significantly increased.

The Tohoku University study also found - as reflected in self-monitoring measurements - that blood pressure was significantly elevated after the Earthquake. However, transport disruption following the tsunami interrupted delivery of regular medications, such as antihypertensive or antithrombotic drugs, and this may have contributed to the increased cardiovascular events. There was also an increase in the occurrences of ventricular tachyarrhythmias in patients with implantable cardiac defibrillators.

"Taken together," said Dr. Shimokawa, "we consider that discontinuation of drugs, activated sympathetic nervous system, rising blood pressure, and the increased occurrence of tachyarrhythmia and infections were all involved in the increased occurrence of cardiovascular events after the Great Earthquake of Japan."

Conference News