

INJURY DISTRIBUTIONS PRODUCED BY NATURAL DISASTERS*

Masaki KANEDA**

Asian Med. J. 37(10): 557-563, 1994

Abstract: Earthquakes differ from other natural disasters in that they produce large numbers of victims in a relatively short time. The human costs are especially high when the epicenter lies near a major city or other area with a high population density. Medical institutions bear the largest burden in rescue efforts after a disaster. One way to lighten this burden is to know in advance what sort of medical emergencies to expect.

The tsunamis, fires, and landslides following earthquakes greatly magnify the human losses. Over 80% of the victims have external limb injuries. Between 10% and 20% are serious enough to require hospitalization or emergency operations. Such causes as falling objects, flying glass, and toppling objects account for approximately half of all external injuries.

In developing countries, the collapse of dwellings with no earthquake resistance produces much higher death and injury rates than in Japan. Since natural disasters strain a hospital's emergency medical treatment capabilities to the limit, advance planning is essential.

Key words: Urban earthquake disaster; Disaster epidemiology;
Emergency medical treatment planning

Introduction

When it comes to earthquakes, volcanic eruptions, storms, floods, and other natural disasters, Japan is a world leader. It is perhaps the leader in terms of earthquakes with some 15% of the world's earthquakes arising in or around Japan at a rate close to 1,000 a year for those detectable without instruments alone.

The death and injury totals for earthquakes greatly outnumber those for volcanic eruptions, storms, and floods. The world's most disastrous earthquake, the 1976 one in Tangshan China, for example, claimed 240,000 lives; the 1923 Kanto Earthquake, 140,000. More recently, earthquakes have produced major losses in developing countries: 10,000 in Mexico in 1985, 50,000 in Armenia in 1988, and 40,000 in Iran in 1990.

* This article is a revised English version of a paper originally published in the Journal of the Japan Medical Association (Vol. 110 No. 6, 1993, pages 715-718).

** Chief of Orthopedics Toyoko Hospital, St. Marianna University