

Studies on Earthquake-related Health Consequences-Short History and Perspective-

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1. Kobe earthquake and Disaster Medicine

The 1995 Kobe earthquake seems to have given a rare opportunity to develop disaster medicine . To check how earthquake-related medical studies have been developing since then, a bibliometric survey was conducted. Using the well-known DBs as of Japona Reviros Medicina (Japan) and of PubMed (Worldwide) , a retrieval was made employing key words of humans and earthquake for both DBs, 150 and 650 original articles were collected respectively (by March, 2007) . Some results by simple statistics are as follows; A chronological analysis made clear that the pioneering study started at the 1993 Hokkaido-nannsei-oki earthquake and continued to the full-scale study fired at the Kobe earthquake and has been developing until today with increasing number of papers, though having slight steps at occasions when significant earthquakes as the 2000 Tottori-ken Seibu, the 2001 Geiyo, the 2004 Chuuetu etc attacked. PubMed DB made clear that the starting up of disaster medicine in relation with earthquakes was at the 1985 Mexico and the drastic development was made at the 1988 Armenia, former Soviet.

2. Broadening of Related Disciplines

Similarly, by a text-mining analysis a hierarchical structure of health consequences by earthquakes was revealed as having 3 layers of which major part is composed with 3 elements of [preparedness and resources], [treatment and care], and [emergency activities]. Covered items of health consequences have from time to time been widening significantly from simple surgical matters to internal and to mental diseases as well.

But, in case at the treatment medical field gives no extension to the most route reasons but deals with an ordinary term of dose-response relation, where dose in the scope of the surgical field is such as falling-down of occupants themselves, collision by a piece of heavy furniture and by fragments of heavy construction materials etc. Likewise, either in internal or mental diseases the dose in the medicine is stress in general of which physical meaning is somewhat indefinite. Therefore, we found almost no articles discussing the onset of diseases in relation of seismic input and related physical quantities to seismic strength.

On the other hand, the dose in the earthquake engineering is nothing but the strength of seismic input motion and is usually given in terms of seismic intensity, and so input-output relation is far reasonable than in the medical approach at present. However, what the earthquake engineering covers is simply immediate injuries and sudden deaths with bleeding and no extensive consideration to sequentially changing health consequences.

3. Necessity of Cross-sectional Studies

As stated above, both research fields of medical science and earthquake engineering have been progressing rather independently until now. Both should naturally be developed at least by mutual understanding, and hopefully be pursued via cross-sectional studies beyond traditional approaches as they are. What we truly desire is to make a special effort to bridge the gap from both sides of earthquake engineering and medical science.

Keywords: Hyougoken Nanbu Earthquake, Health Consequence, Disaster Medicine, Transdisciplinary Study