

### Mount Usu Volcanic Eruption in 2000 and Transportation of Severely Injured Patients by Helicopter

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Japan is famous for volcanoes and earthquakes. Mount Usu in Hokkaido erupted for the second time early Friday, 01 April 2000 after lying dormant for 23 years. The activity was accompanied by temblors with the biggest, a magnitude 4.8 earthquake on the open-ended Richter scale, striking at 03:12 hours. Abuta town was almost deserted as about 10,000 people, out of a total population of 10,200, evacuated the town to nearby municipalities after the eruption. The volcanic fumes rose as high as 3,200 meters, dumping volcanic ash and rocks over a wide area on the downwind side of the explosion. Experts remain wary of Usu's future. On 01 May, observations of the Hokkaido volcano indicated that the eruptions are smaller and occurring less frequently, leading some to predict no major explosions will occur in the near future.

More than 260 citizens from the near towns participated in a disaster preparation-training course in October 1995. Drills and meetings are held routinely by the city or town district. The three municipalities signed an agreement in 1997, promising to assist one another in the event of a volcanic disaster.

Based on the experience in the Mount Unzen-Fugen peak eruption in 1991, from which 43 persons died, we now are planning the transportation by helicopter and airplane when many severely burned victims or patients with severe multiple trauma occur. Until now, no injuries or deaths have been reported. We will report the details of this Mount Usu's volcanic eruption.

**Keywords:** disaster; earthquake; eruption; evacuation; exercises; Japan; volcano

### The Early Medical Management of Critically Injured Accident Victims in Tokai-mura, 30 September 1999

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Generally speaking, in this radiation accident, people who needed medical attention were grouped into the following:

- 1) Three highly-irradiated workers who required treatment for acute radiation syndrome;
- 2) About 100 persons, mostly workers, with documented low-dose exposure who needed medical follow-up included those who were within the facility at the time of the incident and those who were engaged in the concerted efforts to terminate the continuing event; and
- 3) Residents who lived near the uranium conversion facility. No significant radiation exposure was documented among them, but explanation of health hazards and psychological attention by professionals were needed.

The following observations that occurred at five points after the accident include:

- 1) The accident scene at the uranium conversion facility.
- 2) Transportation of three patients;
- 3) The initial treatment and triage at the local national hospital;
- 4) The National Institute of Radiological Sciences (NIRS); and
- 5) The University Hospitals where acute and long-term treatment was carried out for patients with acute radiation syndrome.

In addition, some new clinical observations were made:

- 1) Hypoxia can occur soon after the exposure in these three patients;
- 2) Prolonged massive wound exudate from the injured skin seen in the most severely exposed patients; and
- 3) Massive watery diarrhea occurred after 4 weeks and then GI bleeding after 7 weeks were observed in one patient.

**Keywords:** accident; hypoxia; radiation; radiation syndrome; skin; triage; treatment; uranium