



Original Research

Management of Multiple Burned Patients with Inhalation Injuries



Kouhei Ishikawa, MD, PhD, Youichi Yanagawa, MD, PhD*, Yukino Kato, MT, Yoko Nozawa, MT, Hiroki Nagasawa, MD, Ikuto Takeuchi, MD, Kei Jitsuiki, MD, Akihiko Kondo, MD, Hiromichi Ohsaka, MD, PhD, Kazuhiko Omori, MD, PhD

Department of Acute Critical Care Medicine at Shizuoka Hospital, Juntendo University, Izunokui City, Shizuoka, Japan

A B S T R A C T

The fire department in Atami received an emergency call at 6:17 AM, with notification of 4 or 5 casualties because of a fire. Because there was only 1 ambulance (O) at the station, an additional ambulance (P) was also requested. Ambulance O transported 2 patients (A and B), and ambulance P transported 2 patients (C and D). These 4 patients were judged to have severe inhalation injuries at the scene and were transported to 2 local hospitals (X and Y). After patients C and D arrived at hospital Y, the medical staff decided to transfer them to the emergency medical service center. Patient C was transported by an emergency medical helicopter (doctor helicopter), and patient D was transported to our hospital by ambulance P. After tracheal intubation, both patients (C and D) required intensive care and mechanical ventilation. Patient A at hospital X was also intubated and transported to another hospital by the doctor helicopter. Fortunately, all patients survived. After a review among the parties involved in the incident, initiating an early request for additional human resources, vehicles, and medical support was recognized as contributing a key role in achieving a successful outcome.

Copyright © 2018 Air Medical Journal Associates. Published by Elsevier Inc. All rights reserved.

In Japan, there are no medical facilities equipped to deliver comprehensive care to more than a few severe burn patients simultaneously, although many of these specialized facilities exist in the United States.^{1,2} Accordingly, the Ministry of Health, Labour and Welfare in Japan has developed a plan for performing dispersion transportation to medical emergency centers when a disaster involving multiple severely burned patients occurs, depending on the severity.³ When dispersion transportation is required for a mass casualty incident, physician-staffed helicopters are useful for selecting the appropriate medical facilities from a wide area and providing quick and safe transportation.⁴⁻⁶ We herein report on 4 patients with severe inhalation injuries who required delayed dispersion transportation using physician-staffed helicopters after a fire occurred in Atami, Shizuoka Prefecture, Japan.

Atami is located near the eastern border of Shizuoka Prefecture adjoining Kanagawa Prefecture, near Tokyo (Fig. 1). The area of Atami is 61.78 km², and the population is approximately 37,000. The fire department in Atami consists of 85 members, with 1 head-

quarters, 2 departments, and 14 vehicles, including 3 ambulances. In April 2016, the fire departments in 4 cities and 3 towns in eastern Shizuoka Prefecture combined and grew in size. This new department is called the Sunto-Izu Fire Department and has 598 members and 140 vehicles. However, the fire department in Atami declined to join the Sunto-Izu Fire Department (Fig. 2).

In Japan, there are only 10 burn centers in Tokyo, Kanagawa, Chiba, Aichi, Hyogo, and Fukushima combined, and each of these centers can receive only a few severely burned patients. There are 36 advanced emergency medical service centers in Japan that also receive severely burned patients, but similar to the burn centers, these facilities can handle only a few severely burned patients. There are also 284 standard emergency medical service centers in Japan, but some of these facilities cannot manage severely burned patients. In Shizuoka, there are 10 emergency medical service centers, including 2 advanced facilities; however, there are no hospitals equipped to treat extensive severe burn injuries.

Until March 2017, there were 49 physician-staffed helicopters (doctor helicopters [DHs]) across 40 prefectural governments. In Shizuoka Prefecture, there are 2 DHs. In addition, many neighboring prefectures have agreements concerning collaboration with DHs, and Shizuoka, Kanagawa, and Yamanashi Prefecture have such an understanding. DHs in Japan operate only during the daytime and follow visual flight requirements. Meanwhile, disaster prevention

* Address for correspondence: Youichi Yanagawa, MD, PhD, Department of Acute Critical Care Medicine at Shizuoka Hospital, Juntendo University, 1129 Nagaoka, Izunokuni City, Shizuoka 410-2295, Japan.

E-mail address: yyanaga@juntendo.ac.jp (Y. Yanagawa).

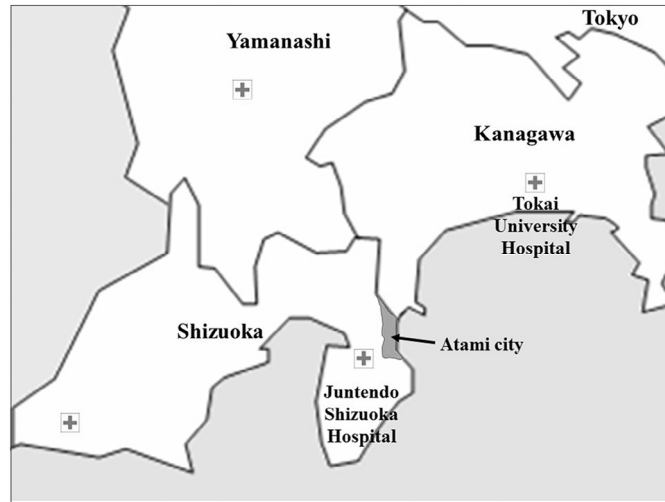


Figure 1. Location of Atami and the base of the physician-staffed helicopters in Shizuoka, Kanagawa and Yamanashi Prefectures. Atami is located near the eastern border of Shizuoka Prefecture, which borders Kanagawa Prefecture. Shizuoka, Kanagawa and Yamanashi Prefectures share an agreement concerning collaboration in using the doctor helicopter (gray cross: base hospital of the physician-staffed helicopters).

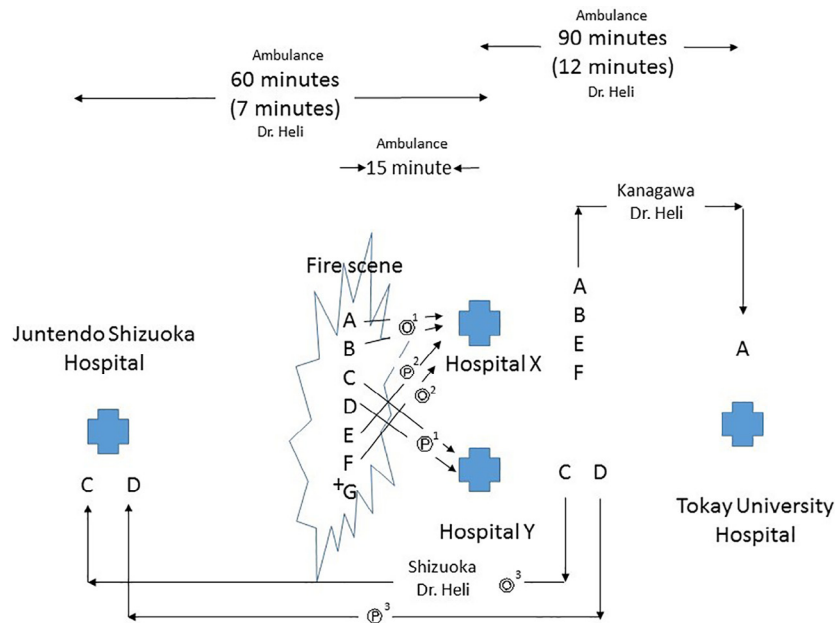


Figure 2. Distribution and chronological movement of patients and the means and time of transportation. A, B, C, D, E, F, G: patient codes, as shown in the manuscript and Table 1. ⊙, ⊕: ambulance codes, as shown in the manuscript and Table 1. The upper shoulder of figure indicates the order of transportation. ⊙1: ⊙ transported the patient the first time. Dr. Heli: a physician-staffed helicopter.

or military helicopters can fly in some areas at night under instrument rules. Our hospital is the base of the DH in eastern Shizuoka Prefecture, and DH operations start at 8:30 am and finish near sunset when the DH returns to the base.

Report Concerning a Fire in Atami on January 13, 2017

The fire department in Atami received an emergency call at 6:17 AM. The weather was clear, and it was dark before sunrise. The fire department members arrived at 6:27 AM and were notified of 4 or 5 casualties because of a fire. There was only 1 ambulance (O) at the station, so an additional ambulance (P) was requested. The members of a third ambulance crew were involved in firefighting efforts. One ambulance (O) accommodated 2 patients (A, a 31-year-

old woman with face, hand, and inhalation injuries, and B, a 65-year-old woman with face, hand, and inhalation injuries) at 6:41 AM. The second ambulance (P) also accommodated 2 patients (C, an 85-year-old woman with face, hand, and inhalation injuries, and D, a 67-year-old man with face, hand, and inhalation injuries) at 6:57 AM. These 4 patients were judged to have severe inhalation injuries at the scene.

Because this incident occurred before the DH of eastern Shizuoka began operations for the morning, it took approximately 1 hour to travel from the scene to the nearest emergency medical service center (Juntendo Shizuoka Hospital); the 4 patients (A-D) were initially transported to 2 local hospitals (patients A and B to hospital X at 6:58 AM and patients C and D to hospital Y at 6:59

Download English Version:

<https://daneshyari.com/en/article/8554661>

Download Persian Version:

<https://daneshyari.com/article/8554661>

[Daneshyari.com](https://daneshyari.com)