

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/burns

The role of preliminary hospitals in the management of a mass burn casualty disaster

Ling-Wei Kuo^a, Cheng-I Yen^b, Chih-Yuan Fu^{a,*}, Chun-Hao Pan^c,
Chih-Po Hsu^a, Yen-Chang Hsiao^b, Chi-Hsun Hsieh^a, Yu-Pao Hsu^a

^a Chang Gung Memorial Hospital, Trauma and Critical Care Center, Linkou, Taoyuan, Taiwan

^b Chang Gung Memorial Hospital, Burn Center, Linkou, Taoyuan, Taiwan

^c Chang Gung Memorial Hospital, Department of Plastic & Reconstructive Surgery, Keelung, Taiwan

ARTICLE INFO

Article history:

Accepted 30 November 2017

Available online xxx

Keywords:

Burn

Mass-casualty

Disaster

Pre-hospital

Patient distribution

Scene triage

ABSTRACT

Purpose: The Formosa Fun Coast explosion is an internationally-known event that occurred in Taiwan on June 27th, 2015. The blast involved 495 casualties in total, with 253 patients receiving 2nd degree or deeper burns on greater than 40% of the total body surface area (TBSA). Questions were raised regarding whether these victims were sent to the appropriate hospitals or not. Therefore, we analyzed the effect of the initial admission destination in this study.

Material and methods: We retrospectively reviewed all of the victims from the explosion who were sent to the emergency department of Linkou and Keelung Chang Gung Memorial Hospitals. Patients were divided by direct admission and received via transfer. The basic demographics, the efficacy of the initial resuscitation and the clinical outcomes were analyzed.

Results: In total, forty-six patients were included. Thirty-five of them were primarily admitted, and eleven of them were received via transfer. Between the two groups, there was no significant difference in the resuscitation outcome. The ratio of delaying intubation was similar (14.3% vs 27.3%, $p=0.322$). The rate of delayed-detected ischemic events was significantly increased in the referral group (0% vs 27.3%, $p=0.001$). However, there was no amputation event in either group. No difference in mortality was observed between groups (5.7% vs 9.1%, $p=0.692$).

Conclusion: Our preliminary findings suggest that local hospitals are capable of providing high-quality acute care to mass casualty burn victims. Our results suggest that patients with suspected limb ischemia should be rapidly transferred to a regional burn center to ensure optimal care. Systemic pre-planning such as employing telemedicine and personnel collaboration, should be considered by the administration to maximize the function of preliminary hospitals in burn care.

© 2017 Elsevier Ltd and ISBI. All rights reserved.

* Corresponding author at: Chang Gung Memorial Hospital, Linkou, Trauma and Critical Care Center, No. 5, Fuxing St., Guishan Dist., Taoyuan 333, Taiwan.

E-mail address: fucy@cgmh.org.tw (C.-Y. Fu).

<https://doi.org/10.1016/j.burns.2017.11.014>

0305-4179/© 2017 Elsevier Ltd and ISBI. All rights reserved.

1. Introduction

A mass burn casualty disaster (MBCD) is defined as a catastrophic event in which the number of burn victims exceeds the capacity of the local burn center to provide optimal burn care [1]. Although rare in civilian settings, an MBCD poses an extreme stress to the pre-hospital rescue and health service system. To minimize morbidity and mortality, an MBCD requires advanced nationwide planning before the disaster event by allocating limited resources by the government administration.

The Formosa Fun Coast (FFC) explosion, also known as the Baxian explosion incident, is an internationally known event that occurred in northern Taiwan on June 27th, 2015. A blast ignited by colored starch powder turned a fun party at the water park into a disaster involving 495 casualties. In total, 253 patients received 2nd degree or deeper burns on greater than 40% of the total body surface area (TBSA), and 32 patients had such burns on greater than 80% of the TBSA [2]. Similar to other countries, burn centers are scarce in the medical service system in Taiwan, and many of these patients were sent to preliminary care hospitals for initial resuscitation before referral to burn centers for definitive care. As a consequence, many questions were raised regarding whether these victims were sent to the appropriate hospitals.

A review of published studies found that some of the data suggested that direct admission to a burn center or transfer after admitting the patients to preliminary hospitals does not affect the outcomes of burn victims [3-5], whereas other studies suggested that admission to preliminary hospitals may be hazardous [6,7]. However, all of these studies were based on

longitudinal data acquired over multiple years and were not focused on a single mass-casualty event. Furthermore, many countries have developed mass burn casualty plans, and many of these nationwide guidelines recommend sending burn patients to local hospitals first [1,8-10], but no strong statistical evidence supports this practice. Therefore, whether initial patient destination hospital influences the outcome of burn patients in an MBCD is still not fully clarified, and we analyzed the effect of the initial admission choice in this study.

2. Materials and methods

This is a retrospective single-center study. All of the victims from the FFC explosion who were sent to the emergency department (ED) of Linkou Chang Gung Memorial Hospital (CGMH LK) or Keelung Chang Gung Memorial Hospital (CGMH KL) were studied. CGMH LK is the largest level 1 trauma center in Taiwan, with a 21-bed burn unit and an additional plastic surgery intensive care unit (ICU) of 20 beds that serves as a reserve for the burn unit when supplementary beds are needed. CGMH KL is a level 1 trauma center on the northern coast of Taiwan with a 2-bed burn unit and a surgical ICU of 16 beds that serves as reserve for the burn unit. The geographic location is presented in Fig. 1. The burn units in the two hospitals both fulfilled the requirements of the Joint Commission of Taiwan (JCT) and the Ministry of Health and Welfare (MOHW), and all patient care was integrated by board-certified burn surgeons. The patients sent to our hospital, primary or referral, were all managed under the American Burn Association (ABA) practice guidelines for burn care [11]. Patient injuries were assessed immediately, and burn surface area and



Fig. 1 – The geographic relationship among FFC, CGMH LK, and CGMH KL. FFC=Formosa Fun Coast. CGMH LK=Linkou Chang Gung Memorial Hospital. CGMH KL=Keelung Chang Gung Memorial Hospital [33].

Download English Version:

<https://daneshyari.com/en/article/8694603>

Download Persian Version:

<https://daneshyari.com/article/8694603>

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