

MANAGEMENT OF ELDERLY BURN PATIENTS

Shin-Bin Huang¹, Wen-Han Chang^{1,2,3,4*}, Chein-Hsuan Huang⁵, Cheng-Ho Tsai⁶

¹*Emergency Department, Mackay Memorial Hospital, ²National Taipei University of Technology,*

³*Mackay Medicine, Nursing and Management College, ⁴Graduate Institute of Injury Prevention and Control, Taipei Medical University, ⁵Department of Rehabilitation, Tai-En Memorial Hospital, and ⁶Section of Cardiology, Department of Internal Medicine, Mackay Memorial Hospital, Taipei, Taiwan.*

SUMMARY

Burn injuries are the principal reasons accounting for emergency department admissions in elderly patients. Elderly patients over 65 years of age constitute between 13% and 20% of admissions to burn units, but have the highest death rate among the overall burn population. Among the number of burn deaths in 2002, the elderly group accounted for 30.3% of the all-age population in Taiwan. The risk of death from a major burn is associated with increased burn size, increased age, the presence of a full-thickness burn, the presence of inhalation injury, and female gender. Management of elderly burn patients remains a difficult challenge for clinicians from clinical, rehabilitative, social and ethical perspectives. Concerning the unique physiologic and metabolic changes in geriatric patients, it is imperative that a well-organized, protocol-driven approach to provide for proper medical care be considered. The current article will review the management of ongoing effective health prevention procedures, which necessitates focusing on both prevention and damage limitation with the aim of a reduction in thermal events in the elderly. [International Journal of Gerontology 2008; 2(3): 91–97]

Key Words: aged, burns, fluid therapy, mortality, resuscitation

Introduction

Burn injuries are the principal reason accounting for emergency department admissions. Based on 2002 data reported by the Bureau of National Health Insurance (Taiwan), 178,975 burn patients, i.e., 0.8% of the total Taiwanese population, were registered for medical treatment. According to one epidemiologic survey of burn injuries in Taiwan, the overall mortality rate of burn injuries and incidence of catastrophic and hospitalized burns showed a decreasing trend, and the incidence of ambulatory burns showed an increasing trend¹. Advances in medical progress and modern burn care have contributed to these changes over the

last two decades, and these include the advent of topical treatment, improved resuscitation, modern hemodynamic monitoring, adequate nutritional support, and early tangential excision and grafting.

Advances in medical care and longevity have resulted in an increase in the elderly population, and burn injuries in this subset of the population are becoming more prevalent. Elderly patients over 65 years of age constitute between 13% and 20% of admissions to burn units, but have the highest death rate among that of the overall burn population^{2,3}. Among the number of burn deaths in 2002, the elderly group accounted for 30.3% of the all-age population in Taiwan⁴. The risk of death from a major burn is associated with increased burn size, increased age, the presence of a full-thickness burn, the presence of inhalation injury, and female gender^{3,5}. Management of elderly burn patients remains a difficult challenge for clinicians. The current article will review the modern trend of management of elderly burn patients.



*Correspondence to: Dr Wen-Han Chang, 92, Section 2, Chungshan North Road, Taipei, Taiwan.
Email: branden888@gmail.com
Accepted: June 12, 2008

Table 1. *Common fluid resuscitation formulae*

Formula	Description
Parkland	Lactated Ringer's 4 mL/kg/% burn; first half given over the first 8 hours, half given over the next 16 hours, then colloid 0.5 mL/kg/% burn plus 5% dextrose in water 2,000 mL given over the second 24 hours
Brooke	Lactated Ringer's 2 mL/kg/% burn, plus colloid 0.5 mL/kg/% burn, administered simultaneously
Warden	Hypertonic saline 250 mEq/L, given to maintain a urine output of 30 mL/hr; lactated Ringer's with 50 mEq NaHCO ₃ ; then lactated Ringer's as needed to maintain target urine output
Demling	Dextran 40 in saline at 2 mL/kg/hr, then lactated Ringer's as needed to maintain target urine output
American Burn Association formula	2–4 mL/kg/% burn; the first half given over the first 8 hours, half given over the next 16 hours

Epidemiology of Elderly Burn Patients

Flame is the main cause of burn injury. Other causes, in order, include scalds, thermal contact, inhalation, hot fat and immersion. The majority of elderly burns occur at home, most commonly in the kitchen followed by the bathroom and living room. The majority of burns in the elderly is caused by carelessness and they are probably preventable.

Sensory and cognitive impairment in later life and preexisting medical conditions may lead to a decreased ability of the elderly to identify the severity of the situation as well as a reduced capacity to escape from harm⁶. This, in turn, may increase vulnerability more than predicted, resulting in larger burn size, deeper burns and an increased risk of inhalation injury.

Elderly burn patients suffer from greater morbidity and mortality than younger patients with similar burn size as a result of the risk factors prevalent in the elderly, including premorbid conditions (e.g., diabetes, cardiovascular diseases), decreased pulmonary reserve, protein-energy malnutrition, unintentional weight loss, decreased lean body mass, impaired response to infection and sepsis, thinner skin, poorer microcirculation, and increased susceptibility to infection.

Fluid Resuscitation for Elderly Burn Patients

Most clinicians resuscitate patients with burns greater than 15% of total body surface area (TBSA) in adults and 10% of TBSA in children. Fluid resuscitation can be critical to the development of decreased tissue perfusion, multiple organ failure, sepsis, and mortality; hence, predicted fluid resuscitation constitutes a critical

component of the early care of the burn patient. There are several fluid resuscitation formulae available for the burn patient during the initial period of volume resuscitation (Table 1)⁷. The Parkland formula is the favorite of most surgeons and emergency physicians. Mean arterial pressure (MAP) and adequate urine output (UOP) are the most reliable measures of adequate tissue perfusion. To ensure adequate fluid resuscitation, it is the goal to maintain MAP above 60 mmHg and an UOP of 0.5–1.0 mL/kg/hr or 30 mL/hr. For burn patients with myoglobinuria, osmotic diuresis with mannitol may be required to achieve an UOP of 100 mL/hr. In addition, larger volumes of resuscitation fluid were also identified as a risk factor for injury complications and death⁸.

Underresuscitation of a burn patient can lead to a downward spiral of unnecessary complications, including hypovolemic shock, renal failure, and the conversion of partial-thickness wounds to full-thickness wounds^{9,10}. A patient with both a large, deep burn and a profound inhalation injury, or a patient in whom resuscitation has been delayed, may require significantly more fluid than predicted by the Parkland formula to maintain MAP and UOP¹¹. In addition, in elderly patients, more fluid is required to resuscitate the same burn size than expected to avoid hypovolemia¹², and the reason is likely to be the decreased skin turgor which decreases the resistance to fluid accumulation or edema production.

Overresuscitation of a burn can also lead to potentially deleterious effects, including compartment syndromes involving the extremity or abdomen, pulmonary edema, congestive heart failure, acute respiratory distress syndrome, prolonged periods of ventilation, and increased mortality¹⁰. These elderly patients may have underlying disease, lower cardiac output and impaired renal function, and may, therefore, be less tolerant of

Download English Version:

<https://daneshyari.com/en/article/3325291>

Download Persian Version:

<https://daneshyari.com/article/3325291>

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