

Abstract

Although first and second degree burns are the most minor category of burns, they are also the most frequent and occur in large numbers every day. While prognosis for a full recovery is extremely good, burn patients may well need a variety of services from occupational therapy. These services include direct help with wound management and maintaining range of motion (ROM) to assistance with activities of daily living (ADLs) and the instrumental activities of daily living (IADLs) needed to get back to pre-injury function, and confidence. Even relative minor burn injuries affect the whole person, physically, psychologically, and socially.

First and Second Degree Burns

Description and Diagnosis

Burns are injuries that result from direct contact with or exposure to any thermal, chemical, electrical, or radiation source. A first-degree burn is the mildest form of burn damage to the skin. It affects only the epidermis of the skin and causes redness and soreness. Sunburn can often be categorized as a first-degree burn. A second-degree burn not only shows as redness but also as blistering of the skin. Second-degree burns can be either superficial or deep, and are generally differentiated by the degree of damage to the dermis. Whereas first-degree burns begin to reduce in two or three days, second-degree burns usually take more than three weeks to heal.

The severity of a burn is determined by several factors, most notably the size and the depth of the burned area (Van Loey & Van Son, 2003). The size of the burn is determined as a percentage known as the Total Body Surface Area (TBSA) burned (American Burn Association [ABA], 2009). The depth of injury is a function of temperature or source of energy, such as radiation, and the duration of exposure (Loehne & Goodman, 2009).

Burns also vary in significance by location, for example inhalation of burning material or just very hot air can damage the delicate epithelial cells in the airways and cause a more serious burn. The impact of a burn is also varied by the health and age of the person prior to the burn. Burn injuries most commonly affect the face, hand, and feet.

Etiology

Burns have many different causes, but exposure to flame or burning objects and scalding are the most common. Burns are also caused by strong radiation, such as the sun or excess exposure to man-made sources such as UV-lamps in tanning salons or even X-Ray machines. Another burn source is electricity, which when conducted through the skin surface can cause burns. Domestically this can occur due to faulty wiring. In nature this can be caused by lightning. One further source of burn is caused by contact with a caustic substance. The most common source of this kind of skin damage is by the ingestion of caustic household products such as alkalis, acids, or bleach.

What Population Does It Affect?

Although the possibility for accidental burns applies to everyone, the population tends to be distinctly bi-modal, occurring more frequently in children, 17%, and seniors over 60, 12%, (ABA, 2009). Burns are distinctly more common in men than women, with men representing 70% of those injured (ABA, 2009). In the United States, it is estimated 1.2 million people suffer a burn each year and of these more than 50,000 require hospitalization. Approximately 5,000 people in the United States die each year from burn injuries (ABA, 2009).

It is thought that half of all burns involve smoking or substance abuse (Murphy, Colwell, Pineda, & Bryan, 2009). Of reported cases, 66% occur at home, and 75 percent of burn injuries are self caused (ABA, 2009; Loehne & Goodman, 2009).

How Are Burns Treated?

Since first- and second-degree burns are the least extreme classes of burn, they may only need first-aid treatment with topical creams designed to reduce inflammation and pain. The most urgent and important first aid action is to remove the person from the source of the burn. The degree of the burn needs to be assessed before an appropriate treatment regimen can be determined. In the case of smaller, less severe burns that can be treated at home, the area of the burn should be washed gently with an antiseptic cleaner and covered or bandaged loosely for 24 hours. Local wound cooling may even decrease the depth of a burn (Riley, Clark, & Wong, 2002). If a burn is large, approximately three inches in diameter or more, it is best to seek immediate medical advice.

One of the biggest risks from a burn is infection where the skin surface is ruptured. If the burn area is large, then dehydration may also play a significant role. Any blisters that arise should not be pierced. An aloe-based cream can be used, along with anti-inflammatory medicines to reduce swelling and pain. Beyond wound care, the main goal of the recovery period is to keep the damage from leading to contracture and loss of ROM in a joint. Some deep second-degree burns, particularly in sensitive cosmetic areas such as the face, may need skin grafting as part of the treatment.

Burns caused by chemicals applied to the skin are treated in a slightly different way. The main first aid action is to remove any further contact with the chemical, noting what the chemical was, and to flush the affected area with an excess of clean water.

Long-term Prognosis

Due in large part to advances in techniques to reduce and manage infection, the prognosis for a first- and second-degree burn is excellent to very good. In the case of first-degree and

superficial second-degree burns the skin will generally repair itself within a few days to a few weeks. In the case of deeper second-degree burns, the longer-term damage is most likely going to be some scarring and the psychological issues arising from the impact of the burn. The psychological effects in first- and second-degree burns should not be underestimated. Almost all burn victims experience psychological issues of some kind. Those who have a burn injury may face issues ranging from denial, to anxiety, to depression, to grief (Pessina & Orroth, 2002). Most have disturbed sleep, and many turn to alcohol to relieve symptoms. In the case of more minor burns, patients have been found to be annoyed at how the injury has interrupted their lives. Patients with serious burns are, at first, happy just to be alive, and depression and anxiety sets in later. “Patients with less severe burns may suffer an equally serious negative physical and psychological impact because they did not experience a loss of life” (Baker et al., 1996, p. 333).

Areas of Occupation and Client Factors Impacted

Depending on the location and extent of the burn, any and all ADLs and IADLs may be affected. With regard to first- and second-degree burns, the patient’s pain and psychological well-being are two areas that really need to be considered and addressed. If the patient undergoes frequent treatment – multiple grafts, ROM, or stretching exercises – they may become fearful of the rehabilitation itself. Rehabilitation in itself often gives rise to anxiety and fear of pain among burn patients. Haik et al. (2006) discussed how to use virtual reality to distract patients from anxiety, provide a more pleasant environment, or shift attention away from pain, and thereby enable longer therapy sessions.

Patients with burn wounds may need occupational therapy to help with the application and adaptation of splints designed to reduce contracture and loss of range of motion (ROM). They may also need assistance with the activities of wound management and, as needed,

debriding of the dead tissue around the wound. In the later stages of the recovery process, OT will help the patient with adaptations to ADLs and IADLs as the person moves to regain pre-injury functioning. OT services at this point may involve training in adaptive equipment, encouragement, conducting and establishing stretching and exercise plans to restore strength and a full range of motion. Depending on the skin healing, the OT may secure pressure garments for the patient and help them use them or learn to use them. OT may also play a part in support of psychological therapies and family education relating to various means to cope with the consequences of the individual situation.

Hwang, Chen-Sea, and Chen (2009) urged occupational therapy departments to consider incorporating a return-to-work program among the services they provide in order to improve the chances that clients who suffer burn injuries -- particularly those who suffer burn injuries to their hands – are prepared for the return to work.

Hill, O'Brien, and Yurt (2007) discussed the therapeutic efficacy of a cooking group from a burn survivors' perspective. Besides reducing anxiety, the cooking group was able to teach such skills as energy conservation, desensitization, and regaining occupational performance and function.

In addition to specific treatments, the OT will often also be involved in broad based preventative strategies in the reduction of risk regarding future burns – particularly in the case of seniors. This may take the form of various environmental modifications and adaptive behaviors. In the case of child burns, this may also need to take on aspects of parental education.

Interesting Related Information

Burns are a global problem, and in researching this paper, the author came across several items that she thought worth mentioning, as they provide two areas for discussion on burn

treatment. A study in India found that dressing a wound with honey had a better outcome in preventing hypertrophic scarring and contracture than treatment with Silver Sulfadiazene (SSD) (Baghel et al., 2009). Surgeons in Turkey have begun performing Cross Incision Plasty that uses the skin of the sidewalls of the proximal phalanges to fill in the burned web space on the hand, eliminating skin grafts, and enabling better ROM (Emsen, 2008)

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