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Life Care Planning for Burn Injuries

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Abstract

According to the Center for Disease Control, almost half a million individuals seek treatment in medical centers throughout the United States for burn-related injuries each year. With advances in biotechnical innovations and improved acute medical stabilization, the survival rate from these injuries is now at 97 percent. Life care planners are often asked to project what the individual will need to provide proper care following burn related injuries. This article provides the life care planner information on the multidimensional nature of the burn injuries in following areas: types of burn and related injuries, burn severity, phases of burn management and healing, returning to work after a burn injury and Life Care Planning implications.

Medical Aspects of Burn Injuries

The skin is the largest organ of the body and serves many functions necessary for our overall health, including protection, regulation of temperature, and excretion of fluids (Williams, 2009). The skin consists of two layers, the epidermis and dermis, which contain multiple layers of skin cells, nerves, blood vessels, sweat and oil glands, and hair follicles (Falvo, 2014; Williams, 2009). One type of injury that can severely damage our skin and the underlying layers are burn injuries (Hollywood & O'Neill, 2014). Severe burns can disrupt the body's internal balance causing serious medical problems. Falvo (2014) defines burn injuries as "any tissue injury resulting from direct heat contact, scalds, flame, chemicals, radiation, or electrical current" (p. 539). The extent of injury is based on several factors including cause or type of burn, duration of contact, depth of burn, amount of body surface that is injured, and the individual's age and overall health (Falvo, 2014; Hollywood & O'Neill, 2014; Moss, 2010; Williams, 2009).

Burn injuries occur most frequently in individuals between the ages of 20-50 (Stergiou-Kita & Grigorovich, 2013). According to the American Burn Association (ABA) National Burn Repository, males constitute 69% of burn-related admissions to hospitals. Of these admissions, 59% were Caucasian, 20% African-American, 14% Hispanic, and 7% Other (American Burn Association, 2014). From 2004-2013, the number one admission cause was fire/flame 43%, followed by scald 34%, contact 9%, electrical 4%, chemical 3%, and other 7% (ABA, 2014). Most of these injuries are sustained in the home (73%) with workplace burns only comprising 8% of injuries (ABA, 2014). Age, occupation, and participation in certain recreational activities (outdoor cooking, camping, and extreme sports) are all factors that can increase susceptibility to burn injuries (Williams, 2009).

Types of Burn and Related Injuries

Thermal Burns

Thermal burns are the most common type of burn and are a result of either fire, hot liquids, or direct contact with an extremely hot surface (Falvo, 2014; Hollywood & O'Neill, 2014). Usually, these types of burns cause direct injury to the outer layer of skin, but in extreme cases, where there is prolonged exposure to intense levels of heat, extreme damage to underlying surfaces of the skin can also occur (Falvo, 2014).

Electrical Burns

Electrical burn injuries can range from local tissue damage to immediate death from cardiac arrest (Falvo, 2014). These types of burn injuries result from direct contact with lighting or an electrical current. Flash burns are low-voltage electrical injuries that can cause chronic pain and devastating changes to behavior and cognition (Falvo, 2014; Williams, 2009). High-tension injuries are sustained from coming into contact of over 1,000 volts and frequently result in amputation, immense areas of damage throughout the body, or death (Falvo, 2014). Individuals with severe cases may exhibit sensory organ damage, including but not limited to, ruptured eardrums or formation of a cataract in the eye (Falvo, 2014). Some resulting injuries may not appear for weeks, months, or even years after the initial incident. Individuals can also develop seizures or brain damage if hypoxia (decreased oxygen) occurred during a cardiac arrest (Falvo, 2014). Due to the complex nature of electrical burn injuries, it may be initially difficult to assess the extent of damage.

The entry points of electrical burn injuries are usually small and cause minimal damage externally. However, considerable internal damage (e.g., injuries to nerves, blood vessels, major organs) may have occurred as the electrical current travels through the body. Cardiac arrest is also possible if the current interferes with the electrical activity of the heart. If the individual's clothing also caught on fire, complicated injuries resulting in co-occurring thermal burns or secondary injuries including fractures or spinal cord injuries due to falling may also result (Falvo, 2014).

Chemical Burns

Chemical burns result from exposure to strong acids,

alkaline agents, gases, or other types of toxic chemicals (Falvo, 2014). Exposure to these chemicals causes extreme damage to the tissue, eventually resulting in necrosis. The extent of injuries depends upon the duration of contact, concentration of chemicals and the amount of tissue exposed (Falvo, 2014). Contact with these chemicals can cause either direct physiological damage to the tissue or indirect damage through heat produced by the chemical reaction with the individual's skin (Falvo, 2014; Williams, 2009).

Radiation Burns

Radiation burns are caused by exposure to either ultraviolet (e.g., the sun) or ionizing radiation (e.g., x-rays or nuclear materials) (Falvo, 2014). The amount of radiation exposure will ultimately determine the severity of the burn. Typically, low doses of radiation can cause some mild discomfort, but recovery time is quick and spontaneous. However, larger doses of radiation can significantly damage underlying tissues and organs, requiring more time for healing and recovery (Falvo, 2014).

Inhalation Injury

An inhalation injury damages an individual's respiratory tract through the inhalation of smoke, toxic gases such as carbon monoxide, steam, or vapors (Falvo, 2014). According to Falvo (2104), individuals can experience cough, increasing hoarseness, anxiety, wheezing, shortness of breath, loss of consciousness, brain injury, or death during an inhalation injury. Furthermore, if cyanide is present in inhaled smoke, an individual can absorb it through the lungs, leading to systemic toxicity (Falvo, 2014; Williams, 2009). In severe cases, a tracheostomy may be needed to assist with breathing.

Freeze Injury

Freeze injuries can result from exposure to extremely cold temperatures (leading to frostbite) or chemicals such as Freon or propane (Falvo, 2014). Extremities such as toes, fingers, or limbs and appendages such as the nose or ears are especially susceptible to frostbite (Falvo, 2014). Frostbite causes severe vasoconstriction (constriction of the blood vessels), resulting in ischemia (lack of blood supply), often leading to necrosis (Falvo, 2014).

No matter the type of burn injury, if an injury is severe, an individual's homeostasis can be lost, affecting all body systems (Falvo, 2014).

Burn Severity

Not only does the type of burn injury determine the level of severity, but severity is also determined by the burn location, depth, and percentage of body surface involved (Falvo, 2014; Murphy & Amblum, 2014; Palmieri & Greenhalgh, 2002; Williams, 2009). For example, if an individual acquires burns on the upper part of the body, respiratory complications due to smoke inhalation, restriction of airway due to swelling, exposure to toxic chemicals, or heat damage to the respiratory structures can occur (Falvo, 2014; Moss, 2010). Long durations of exposure to a burning agent can also impair ambulation and loss of hair, vision, ears, or nose (Falvo, 2014).

Burn injuries are also classified by their burn depth, which relies on the temperature of the burning agent, length of exposure, thickness of the skin, and blood supply to the injured area (Falvo, 2014; Moss, 2010; Murphy & Amblum, 2014). Depending on the severity, an injury can be classified as one or a combination of multiple burn depths. However, Williams (2009) states that describing an injury as a first, second, or third degree can be misleading due to the wide variations found at each level. The descriptive categories superficial, partial-thickness, and full-thickness burns are more commonly used in clinical settings (Williams, 2009). First-degree or superficial burns only affect the epidermis (outer layer of skin), causing the skin to become red or painful. The injured epidermis layer sloughs within a few days and will usually heal within one week, with no residual scarring (Falvo, 2014; Moss, 2010; Williams, 2009). Second-degree or partial-thickness burns affect both the epidermis and dermis layers of skin. These types of burns cause the skin to become red with very painful blisters, which eventually erupt, allowing an entryway for bacteria and infection (Falvo, 2014; Moss, 2010; Williams, 2009). Healing can take from 14 days to four weeks with minimal to significant scarring (Moss, 2010). Third-degree or full-thickness burns decimate the dermis and epidermis. Third-degree burns also destroy skin appendages such as hair follicles, sebaceous glands, and sweat glands. In these injuries, there is often destruction of nerve endings located near the burn (Falvo, 2014; Moss, 2010; Williams, 2009). One recent study indicated that up to one in ten patients will experience neuropathy following burns (Wolf, Phelan & Arnoldo, 2014). The final burn depth classification is fourth-degree burns, where tissue damage expands to the subcutaneous fat, muscle, or bone and treatment may entail amputation or reconstruction (Falvo, 2014; Moss, 2010).

The final factor determining burn severity is the percentage of body surface affected by a burn injury. Falvo (2014) and Moss (2010) both describe two methods for calculating the amount of body surface that is injured, the Rule of Nines and the Lund and Browder Method. The Rule of Nines graphically divides the body into areas that represent varying percentages of total body surface. However, the Lund and Browder Method more accurately calculates the body surface area according to age (Alharbi et al., 2012; Falvo, 2014; Moss, 2010). Burn injuries usually result in necrosis (tissue death) of the affected area, which depending on the type of burn injury can lead to different injury patterns requiring specific management strategies (Williams, 2009).

Phases of Burn Management and Healing

Burn wounds are managed depending on the severity of the injury, body area affected, and philosophy of the medical

professionals providing care. The main goal of burn care is to restore form, feeling, and function, to injured areas (Williams, 2009). Based upon a review of data, the average length of hospital stay following a burn injury of any type in 2011 was 8.4 days, with no difference found in length of stay based upon gender. Most deaths occur within 72 hours of the initial injury with only 2.8% (male) and 3% (female) mortality rates reported (American Burn Association, 2012; Wolf, Phelan & Arnoldo, 2014). Hospital care with specialized medical staff is necessary for individuals with moderate to severe burn injuries. Often, the course of the injury evolves over time, requiring medical treatment and management of the injury to adapt in order to provide the best treatment possible. The drastic physiologic and metabolic changes a person can experience after a burn injury can be divided into four phases: resuscitation, post-resuscitation, inflammation and infection, and rehabilitation and wound-remodeling (Falvo, 2014).

Resuscitation Phase

This phase of treatment focuses on alleviating any life-threatening breathing issues and helping the body return to homeostasis (Falvo, 2014). Survival is the most important factor and an emphasis on preventing complications is paramount. The evaluation of a burn patient for treatment begins with the trauma ABCDE assessment (i.e., airway, breathing, circulation, disability, exposure) (Hettiaratchy & Papini, 2004). For some patients, intubation and ventilator support may be required (Oliver, 2014). However, due to the higher rates of complications for burn patients who undergo intubation, particularly those with inhalation injuries, recent research suggests that intubation is not appropriate for many patients who sustain burn injuries (Wolf, Phelan & Arnoldo, 2014). In patients with burns that approach 15-20% total body surface area (TBSA), shock will occur if they do not undergo appropriate fluid resuscitation (Haberal, Abali, & Karakayali, 2010). Prompt establishment of large-bore intravenous (IV) access and rapid initiation of fluid resuscitation are necessary (Faraklas, Cochran, & Saffle, 2012). In burn patients who require IV resuscitation, an indwelling catheter is inserted early so that urine output can be monitored as a guide for volume status. Nutritional support is vital for individuals with severe burn injuries, as they can lose up a pound or more per day and may need to be fed through a feeding tube or intravenously (Falvo, 2014; Gaby, 2010; Rowley-Conwy, 2010). It is recommended by the American Burn Society to place a nasogastric tube to decompress the stomach and begin early enteral feedings as part of the resuscitation stage. Recent research indicates that patients who receive early feedings develop fewer burn-related infections and complications (Wolf, Phelan, Arnoldo, 2014).

Post-Resuscitation Phase

One of the main concerns during the post-resuscitation phase of healing is fluid stability. Water loss through evaporation from the burn surface can lead to dehydration and cause other medical problems. Without an epidermis, the body has challenges retaining water which increases the likelihood of infection (Williams, 2009). Delayed or inadequate fluid replacement results in hypovolemia, tissue hypoperfusion, shock and multiple organ failure in severely burned patients (Endorf & Ahrenholz, 2011; Endorf & Dries, 2011; Saffle, 2007). However, in the last decade, research has found that "more is not better." In fact, too much fluid too quickly can lead to a phenomenon called "fluid creep," which can lead to excessive edema and organ failure (Bracco, 2011; Friedrich et al., 2004). An additional complication to fluid stability is the mainstay use of opiates for pain control for burn patients. Opioid dosage correlates with fluid requirements. With the increased use of narcotics during initial burn care, there is an increased risk of fluid creep, referred to as "opioid creep" (Endorf & Dries, 2011; Saffle, 2007). Emerging research using ketamine for pain relief may result in increased use of this agent for pain control in patients with burns (Wolf, Phelan & Arnoldo, 2014). Once the patient is hemodynamically stable, has restored capillary permeability and shows signs of diuresis, the post-resuscitation phase is complete.

Inflammation and Infection Phase

Individuals with burn injuries are extremely susceptible to infection. A burn of more than 30% of the total body surface area can have an immunosuppressive effect opening the door to infection (Rowley-Conwy, 2010). During this stage of healing, tremendous care is taken to limit exposure to harmful organisms which can cause life-threatening infections (Rowley-Conwy, 2010). Unfortunately, many individuals with burn injuries are vulnerable to organisms found within their own bodies (Falvo, 2014; Rowley-Conwy, 2010). Recent research using treatment with rapamycin resulted in less inflammation and wound re-epithelialization 10% faster than those patients not treated with rapamycin (Wolf, Phelan & Arnoldo, 2014).

In order to decrease the risk of infection, medical professionals may debride (remove) eschar (charred, dead tissue) to prevent bacteria from growing or collecting in dead tissue (Falvo, 2014; Rowley-Conwy, 2010). Burn wounds may also be covered with sterile dressings or with topical medication, such as silver sulfadiazine to prohibit bacterial growth (Falvo, 2014; Rowley-Conwy, 2010). Recent research conducted in Iran found that treatment with silver dressing significantly decreased infection, need for analgesics and overall length of hospital stay (Wolf, Phelan & Arnoldo, 2014). Burn wounds can remain uncovered, but precautions to safeguard against infection must be followed. Systemic antibiotics can be used to manage infections, but resistance to these types of medications can occur over time (Rowley-Conwy, 2010).

Rehabilitation and Wound-Remodeling Phase

This final phase of healing involves grafting procedures,

reconstructive surgery, and cosmetic interventions (Falvo, 2014). A graft is "tissue that is transplanted to a part of the body to repair an injury or defect" (Falvo, 2014; p. 545). Grafts can be performed in several ways including split-thickness, full-thickness grafts. With split-thickness grafts, outer layers of skin are transplanted from one part of the body to the burned area. With full-thickness grafts, grafts that involve the dermis are transplanted. If more tissue is needed to cover an injured area, a flap may be used, which may offer a better cosmetic result than a graft (Falvo, 2014). Skin flap surgery is a process in which skin, along with the underlying fat, blood vessels and muscle, is transplanted from a healthy part of the body to the injured site. Flaps maintain their own blood supply by remaining attached to the donor site, but can be sutured into place over the injured area.

Laser Treatment

Another complication of burns is hypertrophic scars, which are "configurations of scar tissue that are out of proportion to the amount of scar tissue normally expected for wound healing" (Falvo, 2014; p. 543). Abnormal healing that results in hypertrophic scars or keloids may produce significant morbidity, including itching, pain, stiffness, and contracture (Hultman, Edkins, Lee, Calvert, & Cairns, 2012). Scarring limits range of motion, which can have a significant negative effect on independence in activities of daily living. Affected extremities or joints should be splinted in a position to prevent contracture (fixation of a joint in a position of nonfunction). Scarring can develop over time as one recovers from injury. Burn surgeons are often able to assess areas of burns that are at-risk for development of hypertrophic scarring. Physical or occupational therapists may be able to design therapy plans to try to limit the impact of such scarring. Standard treatments for burn scars include compression therapy, tissue expanders, intralesional steroids (e.g., Kenalog), interferon injections and laser treatments (Waibel & Beer, 2009). Cost for steroid injections vary depending upon amount of steroid use and can range from several hundred to several thousand dollars per injection. Laser treatment has become more prevalent in both the diagnosis and treatment of burns. Laser Doppler imaging is often used to determine burn depth (Wolf, Phelan & Arnoldo, 2014). Lasers are also used to treat scarring resulting from burn injuries and have dramatically improved both the signs and symptoms of hypertrophic burn scars (Alster & Zaulyanov, 2007). While traditional ablative resurfacing has been used to treat scars, the prolonged recovery time and frequent complications has limited their use (Tanzi & Alster, 2004). Fractional laser are quickly replacing this treatment with good results. Fractional lasers utilize light energy to remove microthermal zones of skin, leaving an island of skin intact that helps protect and replenish the skin (Alster, Tanzi, & Lazarus, 2007). This approach treats a fraction (approximately 20-40%) of the skin, but at a level 3 to 5 times deeper than standard techniques (Moelleken, 2012). Common complications of such treatment include mild blistering, pain and fever but significant complications are rare and appear to be significantly outweighed by the improvement gained through these treatments (Clayton, Edkins, Cairns & Hultman, 2013). Many times, this treatment can be provided in an outpatient setting. Costs for such services are based upon location of treatment and total surface area treated. Cost can range $5,000-$15,000+ per treatment and often 2-5 treatments are recommended in a series. This cost is often much lower than costs incurred in treatments requiring lengthy inpatient stays.

Returning to Work After a Burn Injury

Returning to work after a burn injury is an important step to recovery and can allow an individual to return to a more typical daily routine. Burn injuries often result in significant barriers to returning to work including contractures, weakness, body image problems, depression, and post-traumatic stress (Esselman, et al., 2007). Research suggests that 28% of all burn survivors never return to any form of employment. In one study of individuals who sustained burns, 72% of previously employed individuals returned to some form of work within three years after sustaining burn injuries (Mason et al., 2012). Predictors of return to work include time since injury, total body surface area burned, extent of full-thickness injuries, and length of treatment (Dyster-Aas et al., 2007; Helm and Walker, 1992). An individual should always be cleared by a medical professional before returning to work as returning to work before being completely ready could set the client up for failure. A healthcare provider who can evaluate burn-related limitations (mental, physical and environmental) will aid in developing a return to work plan.

Ideally, the individual will spend time during the recovery period focusing on what they may need to emotionally and physically return to work. Doing activities and exercises to increase stamina and strength are important. Practicing tasks that they routinely accomplish while on the job is a great way to prepare to return to work. Including mental health counseling in the vocational plan or life care plan is also recommended to allow the client to have support in coping with the psychological and emotional issues that may arise while returning to work as mental health support will increase the probability of employment success (Esselman et al., 2007).

Individuals with burn injuries all have unique experiences and limitations. Some people with severe burn injuries have acquired respiratory impairments that must be addressed in the return to work plan. Work-related accommodations offered by the employer may include the use of non-toxic carpeting or alternative floor coverings to reduce dust and allergens, using non-toxic building material and lawn products, and pre-notification of construction, heavy cleaning, painting, or using any kind of chemical that may affect the respiratory system (Job Accommodation

Network (JAN), 2014). For clients with gross motor impairment, it may be necessary to modify the work-site to make it accessible to include providing parking close to the work-site, having an accessible entrance, accessible restrooms and break rooms, and modified work stations (JAN, 2014). Fine motor impairment may be accommodated by implementing an ergonomic workstation to include arm supports, alternate computer accessories, writing and grip aids, voice recorders, voice recognition software, or any other type of technology that might allow the person to maintain comfort while completing their daily work tasks (JAN, 2014).

Some people with burn injuries experience heat and cold sensitivity. For heat sensitivity, it may be appropriate to reduce work-site temperature, use a cooling vest, provide fans or air-conditioners at the workstation, or allow for flexible scheduling during the warmer months of the year (JAN, 2014). Cold sensitivity would be accommodated much in the same manner, such as increasing the work-site temperature, using space heaters, allowing jackets and layered clothing, or allowing flexible scheduling during the cold winter months (JAN, 2014). Individuals who performed work outside will likely experience the most difficulty returning to work as the burned skin must be protected from sun exposure. Individuals who previously performed work outside (e.g., construction, delivery work) may be unable to return to such pre-injury occupations due to the environmental irritants, which should be considered by the vocational rehabilitation counselor.

Pain management is often another issue that people with burn injuries must overcome and accommodate. An ergonomic workstation design may help with pain management, will allow the employee to alternate between sitting and standing. Reducing repetitive tasks and allowing frequent breaks may also be important (JAN, 2014). Both the counselor and the employer should also take into consideration any medication the individual may take for chronic pain. Sometimes these medications have side effects that may interfere with daily tasks, which may also require accommodation. Life care planners who are not also vocational rehabilitation counselors should request a vocational rehabilitation evaluation to determine work-related goods and services necessary for inclusion in the life care plan.

Life Care Planning Implications

In most cases, by the time that a life care planner is involved in a patient's care, the resuscitation and post-resuscitation phases of treatment are complete. Focus is then turned to maintaining the individual's range of motion and function, preserving the integrity of the damaged skin, addressing ongoing psychological needs and planning for future interventions. Typically, the individual who has sustained burns is followed on a long-term basis, either by a physiatrist who is skilled in burn care management or a plastic surgeon who specializes in treating individuals with burns. The frequency of visits will vary based upon the needs of an individual, but life care planners should plan for long-term care to address contractures, range of motion complications and possible ongoing wound care. In addition to office visits related to the skin, routine evaluations by physical or occupational therapists should be considered, with emphasis placed upon maintaining range of motion and strength. Individuals with affected skin can quickly develop contractures that can impact their self-care regimens and limit both ambulation and reaching. The use of a quality moisturizing agent should be included in the life care plan, as it is critical that the affected skin maintain moisture. The costs for such items can be several times what the average cost of lotion will be, up to $50-$80 per tube. An inventory should be made of the individual's wound care supplies, if this is an ongoing need, as such items can result in a substantial lifetime cost. Consideration should also be given to assistive devices, which will vary based upon the area of burned skin. For example, individuals with upper extremity burns may benefit from use of a hand-held shower nozzle, reacher, and/or dressing stick if they cannot raise their arms overhead. An individual with lower extremity burns may require use of a cane, walker and/or wheelchair due to limitations in ambulation.

One area of substantial cost for individuals with burns is the need for skilled wound care. States have Nurse Practice Acts which outline what level of skill is required for various nursing related duties. For example, while a nurse assistant may have the skill to provide dressing and grooming assistance or housekeeping services for someone with burns, they are not authorized to treat and dress wounds. For individuals with burn injuries, this may be a service that is required. If wound care is required, most life care planners can outline this service in one of two ways. First, the individual may receive skilled nursing services in the home. In most states, a skilled nurse (e.g., LPN or RN) would be required for this service. Alternatively, the patient may be followed in a wound care clinic. The life care planner must consider the probability that the current wounds will require ongoing wound care. Additionally, the damaged (burned) skin can be easily wounded by the patient abrading the skin and the probability of the skin re-opening over one's lifetime should also be considered. Based upon the patient's situation, the provision of wound care either continuously or intermittently through the patient's life expectancy should be considered.

Should an open wound develop, the life care planner should also consider if the patient will require inpatient treatment for the wound(s). If so, the average length of hospitalization for treatment of wounds may be used to determine the projected length of hospitalization. Based upon a review HCUP 2012 data, the average length of hospitalization for debridement was eight days with charges averaging $55,740. Other burn-related complications that may require inpatient treatment include treatment of scarring,

pneumonia, cardiac events, and cellulitis (ABA, 2012).

Additional home care support may be required for the individual, depending upon the nature of the burn injury. For example, individuals with limited range of motion may require housekeeping services to provide those services that the individual's impairment prevents (e.g., changing sheets or dusting overhead). Due to sun exposure limitations, lawn services may be required to replace the labor that the individual with the burn previously performed. For individuals whose burns may now prevent them from driving, transportation services may also be necessary.

To maintain the previously burned skin, the life care plan should include sun protection mechanisms to prevent burning of the damaged skin. This may include protective clothing with UV blocking properties and hats to shield one's face when in the sun. The life care plan should also include waterproof sunscreen to be used on the previously burned skin anytime it is exposed to the sun. Lip balm should also be worn by the individual to prevent the penetration of UV rays.

As burn injuries include not only physical injuries but also trauma-based psychological components, the life care plan should include mental health services to address these injuries. Depending upon the patient's adjustment to disability, depression and grief must oftentimes be addressed in the life care plan. Group counseling or support groups for burn survivors are often encouraged. For children, play therapy, school re-entry programs and burn camps should all be considered (Weed & Berens, 2010). Psychotropic medications and psychiatric medication management may be indicated. Should the burn injury result in post-traumatic stress symptoms, pharmacological management, as well as psychotherapeutic services, are often necessary to address these reactions. The frequency and duration of these services will depend upon the individual factors of the patient who sustained burns, but if the patient has many years left in his or her life expectancy, provisions for psychological support services should be provided as the person approaches important milestones. These milestones can include: dating and marriage, child rearing, employment adjustment, aging with a disability, etc.

Another long-term modality that is often necessary for management of burn-related injuries is physical/occupational therapy for contracture prevention. One study found that the stretching of burn scar contractures by experienced therapists resulted in an average range of motion improvement of 8.2 degrees per week (Wolf, Phelan, Arnoldo, 2014). Consultation with the individual's rehabilitation therapist or physician is advised to determine the schedule for such therapies as the individual resumes community living. Pressure garments, compression clothing, and splints are all therapy-related considerations for the life care plan.

Pressure garments are commonly used to prevent or decrease hypertrophic (overgrowth) scarring (Falvo, 2014). Garments may last three to four months, depending upon how frequently an individual wears the garment. Pressure garments are typically worn for up to 24 months and the costs can be expensive, up to thousands of dollars for each set of garments issued. For each procedure performed, re-fitting for new garments is performed, typically by a physical therapist. While typically compression garments are worn for a period of 24 months following the burn injury, many patients report that the use of compression-type clothing over the burned skin increases their comfort. As the individual with the burn is always at risk for contractures, lifelong stretching and health maintenance are also recommended.

Conclusion

According to the Centers for Disease Control (CDC), almost half a million individuals seek treatment in medical centers throughout the United States for burn-related injuries each year. From these injuries, 97 percent of individuals will survive. Following acute medical stabilization and rehabilitation, the life care planner is often asked to project what the individual will need to provide proper care for burn related injuries. Consideration must be given to the multidimensional nature of the burn injuries. These include the basic maintenance of nutrition to prevent complications, the aids necessary to assist the person in accomplishing activities of daily living, follow-up medical services to include office visits, medications and therapy as well as the provision of ongoing psychological support to address adjustment to life following burn injuries. The life care planner is the individual best prepared to address these multiple dimensions of treatment of burn injuries and to communicate to all parties the lifelong needs associated for the injury. As biotechnological innovations improve, the life care planning community should continue to track the emerging treatments and research to inquire about the most accurate and innovative treatment for the clients we serve.

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