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Review on general consederation of burn and their treatment

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ABSTRACT –
In this review article the main purpose is to study and review about the burn and their causes , their treatment and herbal plants / herbal medicines that are used to treat burn and also to brief about the burn and the stages of burn and common causes of burn .
Keywords – Burn, herbal plants.

I. INTRODUCTION–

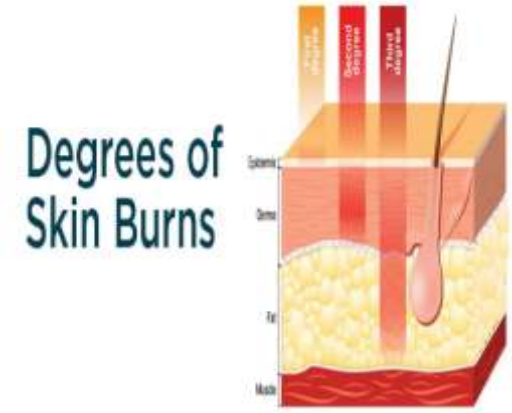
Burn is an injury to the skin by the heat or radiation , chemicals . Burn can be acute and chronic both according to their stages. burn mainly affects the skin which is largest organ of the body. Which covers 95% of body parts. Burn is an most several injury to a person. [1]

The majority of burns do not pose a serious risk to life, but if they are not treated properly, larger burns—even ones with partial thickness—can still be quite deadly. Even still, small burns have the potential to cause severe morbidity due to their acute pain and potential to induce abnormalities such are hypertrophic scars, colloids, and contractures[1][2]

II. TYPES OF BURN –

According to the depth of the burn

1. First degree
2. Second degree
3. Third degree



2.1 First degree burn –

The first degree burn are mild. the top layer of the skin turns red and produces pain. They are also called as superficialburn. It only affect epidermis layer of the skin. [9]

2.2 Second degree burn –

Second degree burn affect the epidermis and dermis layer of the skin . it causes pain , swelling, redness .it also called as partial thickness burn.[9]

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2.3 Third degree burn –
Third degree burn is chronic condition where the affect all the three layers of the skin (epidermis, dermis and fat). It also damage the hair follicles and sweat glands.[8][9]

Pathophysiology –
Burns are by definition skin injuries that can occur in the outer, thinner epidermis or the thicker, deeper dermis. Burns can appear in a variety of distinct ways. Chemical burns can be broken down into two categories: acid burns and alkali burns. Since alkali burns cause the skin to liquefy, the burns often go deeper than other types of burns . Deep tissue damage from acid burns is mitigated by the coagulation it causes (coagulation necrosis). In addition to externally visible damage, such as superficial entry or exit wounds, electrical burns can also cause substantial internal organ damage and secondary traumatic injuries.The majority of burns are thermal, and they are the most common type. Most burns are minor, superficial, and limited in scope.[2]

III. COMMON CAUSES OF BURN –

1. Heat
2. Radiation
3. Chemicals
4. Electric shocks
5. Flame[10]

IV. FACTOR AFFECTING BURN SEVERITY –

1. Depth
2. part of body
3. Age
4. Area of burn
5. Surface area of burn

V. SIGNIFICANS -

Burn injury pain that is not eased poses a serious threat to public health.An estimated 1.25 million people in the US suffer burn injuries each year.19 Of them, 51,000–71,000 need to be hospitalised, and between 700,000 and 827,000182 need care in an emergency room. While these numbers show a decline in prevalence as a consequence of effective burn prevention measures,81 they do not account for the notable rise in patients who survive severe burns.Nor do they disclose that a considerable rise in patients being admitted to burn centres has occurred as a result of the realisation that even minor burns need specialised care.That being said, among all medical diseases, burns require the greatest amount of resources.As a result, there is a common practice to treat patients with more extensive and complicated burns .

VI. MECHANISM OF BURN INJURY –

6.1Thermal injuries –
Scalds: In children, scalds account for about 70% of burn injuries. They also frequently affect the elderly. Spilling hot beverages or liquids or becoming wet from a hot bath are popular mechanisms. The majority of shallow to superficial skin burns are caused by scratches (see later for burn depth).[3]
Flame: burns in adults, 50% are flame burns. They are frequently linked to concurrent trauma and inhalational injuries. Full thickness or deep dermal burns are the most common types.thicknes[3]
Contact: Burns from direct contact require that the object touched be extremely hot, or that the contact be abnormally prolonged; the latter is the more common cause, and these types of burns are often seen in individuals with epilepsy, alcoholism, drug abuse, and in elderly people following a blackout;

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such a presentation necessitates a thorough investigation into the cause of the blackout. Burns from brief contact with very hot substances are typically the result of industrial accidents. Contact burns are more likely to be deep dermal or full thickness.[3]

6.2 Electrical injuries–

An estimated 3-4% of admissions to burn units are the result of electrical injuries. Throughout the body, an electric current will flow from one location to another, forming "entry" and "exit" sites. The current may cause injury to the tissue located between these two sites. The relationship between the amount of heat produced and the degree of tissue damage is 0.24×(voltage)2×resistance. Since voltage is the primary factor influencing the extent of tissue damage, it makes sense to categorize electrocution injuries into two groups: those brought on by high voltage currents and those brought on by low voltage, household currents.[3]

6.3 Chemical injuries –

Chemical injuries can arise from household chemical items as well as industrial incidents. Since the corrosive substance causes coagulative necrosis until it is totally eliminated, these burns typically have a profound appearance. Compared to acids, alkalis typically burn more deeply and do more damage. One typical source of alkali burns is cement.[3]

Non accidental injuries -

It is believed that non-accidental injury accounts for 3–10% of pediatric burn cases. Since up to 30% of children who experience recurrent abuse go on to die, it is critical to identify these injuries. Children under three years old are typically impacted. Similar to other non-accidental injuries, suspicion may be aroused by the injury's history and pattern. Not to be overlooked is a social history. Poor households with single or young parents are more likely to experience abuse. Adults who are dependent on others, such as the elderly, are also vulnerable to abuse of this kind. In these cases, an analogous evaluation is possible.[3]

VII. PHASE OF BURN RECOVERY -

Understanding burn recovery is essential to have a conversation about pain from burn injuries. Three phases are commonly used to categorise burn recovery, taking into account both systemic and local pathophysiologic reactions. After the patient has been stabilised, the acute phase—also known as the emergency or resuscitative phase—is when the initial wound debridement is carried out. This is because significant fluid replacement is frequently needed to maintain circulating volume. The aim of the healing phase is to achieve healing, which necessitates a clean wound bed, which can be attained via surgical intervention or regular dressing changes. The severe inflammatory response linked to elevated, erythematous (reddened) scar tissue diminishes and tissue collagenases stop remodelling during the rehabilitation, or remodelling phase, leaving behind a softer, less. [4][5]

VIII. BURN INJURY PAIN TYPES -

8.1 Procedural Pain

Pain from burn injuries that is procedural , the most severe and most likely to go untreated. Patients report severe burning and stinging pain following procedures, which may persist to some extent but may also be accompanied by sharp pain that flares up every few minutes to hours after dressing changes and physical therapy is finished. Increased pain and inflammation in burn wounds may be caused by wound debridement, dressing c-hanges, and physically demanding physical and occupational therapy that involves manipulating already inflamed tissue[6].

8.2 Painful Breakthrough

Patients with burns experience breakthrough pain, which is a temporary intensification of pain most often brought on by movement. This pain is similar to that experienced by postoperative patients.Patients with burn injuries also report experiencing unexpected elements of breakthrough pain. Inadequate dose, which happens when analgesic serum blood levels fall below what is required to manage background pain, and evolving pain mechanisms over time could also contribute to spontaneous breakthrough pain. According to unpublished research, patients frequently describe their spontaneous breakthrough pain as "stinging," "pricking," "shooting," and "pounding." While pain related to movement-induced primary mechanical hyperalgesia may also be referred to as procedural pain, most burn care professionals view this kind of pain as breakthrough pain. [6][7]

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8.3 Background pain -

Patients with high levels of anxiety who have burn injuries also frequently report having increased background discomfort. There is a great deal of recorded diversity in the level of background pain following burn injuries, just like with procedure pain. The characteristics of background pain are low to moderate severity, a lengthy duration, and a relatively consistent nature. Generally speaking, burn background pain is characterised as a persistent "burning" or "throbbing" pain that occurs while the patient is largely immobile. As a result, the most effective course of treatment is typically a consistent serum therapeutic blood level provided by regularly scheduled analgesics.[6]

IX. CLINICAL PRACTICE IN THE TREATMENT OF BURN INJURY -

9.1.Skin grafting –

Wounds cannot be closed by the primary healing process or suturing [3] when burns or scald injuries are deep partial-thickness in the dermis or fully destroy all skin layers. Instead, further surgical treatments are necessary. Early excision of necrotic tissue followed by autologous skin grafting is the gold standard treatment for partial- and full-thickness burn injuries (Fig. 1). Skin grafting is the transfer of healthy skin from the patient's uninjured donor site to the wound site. Autologous skin grafts can be full thickness (epidermis and dermis) or divided thickness epidermis and top part of the dermis). Unfortunately, donor skin is exceedingly restricted in practice for patients with severe burn injuries that exceeds 50% of total body surface area . This issue is solvable. Sadly , there is a major shortage of donor skin in practice for patients with burn injuries more than 50% of their total body surface area . Harvesting the donor sites repeatedly over time is one way to solve this issue. Donor site healing, however, may be sluggish, resulting in more scarring and perhaps a pigmentation issue. Although autografts can be meshed up to four times to expand the graft's accessible surface area, doing so degrades the quality of the initial graft and causes the recipient area to recover with an uneven mesh pattern that may leave scars behind.[6][7]

9.2 Skin substitutes -

When donor skin is scarce, skin substitutes may be used to shield major burn wounds, promote wound healing, increase the dermal component of healed wounds, and lessen inflammatory reactions and the ensuing scarring. More than thirty novel skin substitutes have been investigated or applied in the management of burn injuries since 2000 . Skin substitutes fall into one of three categories: synthetic, biological, or a combination of both.[6][7]

9.3 Wound dressings –

In order to promote re-epithelialization, stop wound infections, stop skin desiccation, and stop more skin damage, wound dressings are designed to cover wounds. Four categories of wound dressings can be distinguished: antimicrobial, biosynthetic, conventional, and biological dressings. Biological dressings have been used to cover wounds temporarily until they heal, such as cadaver allograft skin (transplantation between individuals of the same species), xenograft skin (transplantation between individuals of different species), and human amnion.Because of immunological differences, biological dressings work well to improve wound quality so that additional skin grafting can be performed, but they cannot be utilised as a permanent skin replacement. Moreover, biological dressings come with a host of drawbacks, including variable quality, scarce availability, and the potential for infection transmission. Traditional dressings, such silicone sheets or Vaseline gauze, are also frequently used to cover wounds temporarily while they heal and regenerate. These dressings don't include antibiotics or other drugs. Nevertheless, these dressings have a propensity to stick to the surface of the wound, and the frequent changes they need traumatise the recently epithelialized surface, delaying recovery. Biosynthetic dressings are made of materials that replace the dermis, epidermis, or both in a way that mimics how skin functions. TransCyte® and Biobrane® are two examples.[6]

9.4 Negative pressure wound therapy --

Currently used in wound care for both large and small burns, negative pressure wound therapy (NPWT) is sometimes referred to as vacuum assisted closure, topical negative pressure therapy, or microdeformational wound therapy. It was initially shown to be more successful than the majority of other pharmacological treatments at stopping the advancement of partial thickness wounds. Further applications of NPWT included temporary abdominal closure for patients with acute burns or high-risk burn patients undergoing pre-operative optimisation before skin grafting. Given that burn injuries are the most complex and traumatic wounds, surgical teams have found that using NPWT helps them manage both . acute burns

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and their long-term effects.NPWT has been shown in numerous published case reports to enhance split thickness or full thickness skin graft take, enabling patients to be mobilised earlier. Furthermore, this impact has been seen when removing burn scar contractures as well as in the acute context.Since NPWT has been shown to prevent shear, its application in conjunction with skin substitutes or templates, such Integra®, has been used in clinical practice to improve poor skin graft take and infection. Furthermore, it is believed that an optimal NPWT environment speeds up wound healing. Additional research has demonstrated that NPWT can effectively stimulate wound healing when split skin grafts, such as those made using Matriderm® or Pelnac® skin substitutes. Less wound infection has been linked to the benefits of NPWT, which include better graft and dermal substitute take in burn injuries.[6]

Medicinal plant used to treat burn –

Serial no.	name	Part	Scientific name
1	Palas	Bark	Butea Monosperma
2	Sitaphal	Leaf , fruit	Annona squmosa
3	Sun flower	Oil	Helianthus annus
4	Coat button	Leaf	Tridex procumbens
5	Henna	Leaf	Lawsonia inermis L
6	Zaitoon	Fruit	Olea europaea L
7	Nill		Indigofera tinctoria L
8	Haldi	zinziberaceae	Rhizome
9	Negur	Shrub	Verbanaceae
10	Charota	Leaf	Fabaceae
11	Loban	Oleogum resins	Boswellia carteri birdw
12	Bhringraj	Leaf	Asteraceae
13	Van tulsi	Leaf	Lamiaceae
14	Wild indigo	Leaf	Fabaceae
15	Chandani genda	Leaf	Asteraceae

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