ejpmr, 2020,7(2), 40-44

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

LUBANHEAL – A NATURAL TOPICAL REMEDY FOR BURNS AND WOUND HEALING

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Article Received on 01/12/2019 **Article Revised on 22/12/2019** **Article Accepted on 12/01/2020**

ABSTRACT

Burns are a type of injury caused by injury to the skin from excessive heat or another injury. The heat can be the result of thermal, electrical, chemical, or electromagnetic energy. Most burn accidents happen at home. About 75% of all burn injuries in children are preventable. Both infants and older adults are at the greatest risk for burn injury. Whereas, wounds are injuries that break the skin or other body tissues. They include cuts, scrapes, scratches, and punctured skin. They often happen because of an accident, but surgery, sutures, and stitches also cause wounds. An estimated 180 000 deaths every year are caused by burns – the vast majority occur in low- and middle-income country. A 2018 retrospective analysis of Medicare beneficiaries identified that 8.2 million people had wounds with or without infections.es. In the United States, 3% of the population>65 years of age have open wounds. By 2020, the US government estimates that the elderly population will be over 55 million, suggesting that chronic wounds will continue to be an increasingly persistent problem in this population. Treatment options depends on type and severity of both burns and wounds and whether other structures beyond the dermis are affected. LubanHeal is a new herbal-based evidence topical preparation formulated from five natural, safe and monographic ingredients which is designed specifically as a remedy for both burns and wounds. It combines Commiphora myrrh gum resin standardized extract mixed with two other standardized extracts obtained from Omani Boswellia sacra gum resin and Aloe vera plus natural honey and sesame oil. This unique blend of ingredients showed simultaneous anti-inflammatory, analgesic, antibacterial and healing benefits.

INTRODUCTION

A burn is a type of injury to skin, or other tissues, caused by heat, cold, electricity, chemicals, friction, or radiation.[1] Most burns are due to heat from hot liquids, solids, or fire.[2] Burns are classified as first, second, third, or fourth-degree depending on how deeply and severely they penetrate the skin's surface. Burns can be classified into the following types:

- First-degree (superficial) burns. First-degree burns affect only the outer layer of skin, the epidermis. The burn site is red, painful, dry, and with no blisters. Mild sunburn is an example. Long-term tissue damage is rare and often consists of an increase or decrease in the skin color.
- Second-degree (partial thickness) burns. Second-degree burns involve the epidermis and part of the lower layer of skin, the dermis. The burn site looks red, blistered, and may be swollen and painful.
- Third-degree (full thickness) burns. Third-degree burns destroy the epidermis and dermis. They may go into the innermost layer of skin, the subcutaneous tissue. The burn site may look white or blackened and charred.
- Fourth-degree burns. Fourth-degree burns go through both layers of the skin and underlying tissue as well as deeper tissue, possibly involving muscle and bone. There is no feeling in the area since the nerve endings are destroyed.

Treatment depends on the severity of the burn.[3] Superficial burns may be managed with little more than simple pain medication, while major burns may require prolonged treatment. Full-thickness burns usually require surgical treatments, such as skin grafting.[3] Extensive burns often require large amounts of intravenous fluid, due to capillary fluid leakage and tissue swelling.[4] The most common complications of burns involve infection. Tetanus toxoid should be given if not up to date.[3]

In 2015, fire and heat resulted in 67 million injuries.[5] This resulted in about 2.9 million hospitalizations and 176,000 deaths.[6,7] Most deaths due to burns occur in the developing world, particularly in Southeast Asia.[8] While large burns can be fatal, treatments developed since 1960 have improved outcomes, especially in children and young adults.[9] In the United States, approximately 96% of those admitted to a burn center survive their injuries.[10] The long-term outcome is related to the size of burn and the age of the person affected.[3]

On the other hand, a wound is a type of injury which happens relatively quickly in which skin is torn, cut, or punctured (an *open* wound), or where blunt force trauma causes a contusion (a *closed* wound). In pathology, it specifically refers to a sharp injury which damages the epidermis of the skin. Wounds can be categorized into two types:

1. Open wounds

Open wounds can be classified according to the object that caused the wound:

- Incisions or incised wounds – caused by a clean, sharp-edged object such as a knife, razor, or glass splinter.
- Lacerations – irregular tear-like wounds caused by some blunt trauma. Lacerations and incisions may appear linear (regular) or stellate (irregular). The term *laceration*is commonly misused in reference to incisions.[11]
- Abrasions (grazes) – superficial wounds in which the topmost layer of the skin (the epidermis) is scraped off. Abrasions are often caused by a sliding fall onto a rough surface such as asphalt, tree bark or concrete.
- Avulsions – injuries in which a body structure is forcibly detached from its normal point of insertion. A type of amputation where the extremity is pulled off rather than cut off. When used in reference to skin avulsions, the term 'degloving' is also sometimes used as a synonym.
- Puncture wounds – caused by an object puncturing the skin, such as a splinter, nail or needle.
- Penetration wounds – caused by an object such as a knife entering and coming out from the skin.
- Gunshot wounds – caused by a bullet or similar projectile driving into or through the body. There may be two wounds, one at the site of entry and one at the site of exit, generally referred to as a "through-and-through."

2. Closed wounds

Closed wounds have fewer categories, but are just as dangerous as open wounds[10]:

- Hematomas (or blood tumor) – caused by damage to a blood vessel that in turn causes blood to collect under the skin.
- Hematomas that originate from internal blood vessel pathology are petechiae, purpura, and ecchymosis. The different classifications are based on size.
- Hematomas that originate from an external source of trauma are contusions, also commonly called bruises.
- Crush injury – caused by a great or extreme amount of force applied over a long period of time.

The overall treatment depends on the type, cause, and depth of the wound, and whether other structures beyond the skin (dermis) are involved. Treatment of recent lacerations involves examining, cleaning, and closing the wound. Minor wounds, like bruises, will heal on their own, with skin discoloration usually disappearing in 1–2 weeks. Abrasions, which are wounds with intact skin (non-penetration through dermis to subcutaneous fat), usually require no active treatment except keeping the area clean, initially with soap and water. Puncture wounds may be prone to infection depending on the depth of penetration. The entry of puncture wound is left open to allow for bacteria or debris to be removed from inside. A first aid antibiotic ointment (Bacitracin, Neosporin, Polysporin) can be applied to help prevent infection and keep the wound moist. As far as non-conventional treatment of burns is concerned , there is no good evidence that therapeutic touch is useful in healing.[12] More than 400 species of plants are identified as potentially useful for wound healing.[13] Only three randomized controlled trials, however, have been done for the treatment of burns.[14]

LubanHeal is an herbal-based evidence topical product formulated from five natural, safe and monographic herbal ingredients which is designed specifically as a remedy for both burns and wounds. These ingredients include Boswellia sacra, Commiphora myrrha, Aloe vera powdered extracts plus honey and sesame oil. LubanHeal possess potential anti-inflammatory, analgesic, antibacterial and healing effects. It shows superior anti-inflammatory and analgesic action compared with both standard drugs used in the study, these are, phenylbutazone, brufen, aspirin and paracetamol. The pharmacological action reported by this product indicated its action on the inflammatory response by blocking pro- inflammatory enzymes. In addition to its analgesic, healing and antibacterial effect. Therefore, it is a class of product that can be used as a remedy burns and wound.

Description

LubanHeal is a very distinguished product that developed after careful preclinical and clinical studies (Figure1). Several in vitro and in vivo studies were conducted to study the efficacy and safety of this product both in vitro and in vivo. For in vitro anti-inflammatory effect, several human and murine cell lines were used including primary murine microglia, raw mouse macrophages, primary human monocytes and primary human fibroblasts to see its effect on prostaglandin E2, interleukin 1-beta (IL-1 Beta), tumor necrosis factor(TNF alpha) and interleukin6 (IL-6). These studies showed that the product possess significant anti -inflammatory properties. For in vivo anti-inflammatory studies, the activity of the product was studied in albino rats using two different pharmacological screening tests, these are:

a. Inhibition of ascites using albino rats
b. Freund's adjuvant using albino rats

LubanHeal exhibited potential anti-inflammatory activity compared to phenylbutazone, brufen and aspirin drugs in causing a diminution of ascites fluid and reducing the inflammation at the paw of rats. Further, the analgesic property of LubanHeal was evaluated using two

pharmacological screening tests, these are:

a. Writhing induced by chemicals using albino mice
b. Hot plate test using albino mice

Luban Heal was more potent as analgesic in both tests compared with the reference standard used in the two above tests represented by paracetamol.

On the other hand, the oral acute toxicity of LubanHeal was investigated in vivo utilizing healthy experimental mice as a model. A single dose was administered to the animals followed by monitoring for a period of 14 days after dosing and recording death and changes in animal behavior and any other physical variables.

The results obtained indicated that the oral LD50 of LubanHeal is more than 2000 mg/ kg in Balb/c mice. In addition, LubanHeal neither induced any death nor caused any abnormal behavior when tested at a dose of 2000 mg/ kg. The skin sensitivity of LubanHeal was studied in guinea pigs. The animals were carefully observed for six weeks for the accumulation purposes. The followings scores were measured to see the effect of intradermal irritation of the LubanHeal:

- Degree of erythema.
- Presence of erythema.
- Behavioral of the erythema.
- Food and water intake.
- Average body weight.

In addition, both gross and microscopic examinations were done on most of the important organs (liver, kidney, skin). Generally speaking, no changes in the color of the skin of the animals were recorded when compared with the untreated control and no edema was observed in the skin of the experimental animals. This indicate that LuabnHeal has no irritation effect on the skin of guinea pigs. Further, no gross or pathological findings were observed in biopsies taken from the liver, kidney and skin in the experimental animals compared to the untreated controls. Furthermore, the effect of LubanHeal was studied on the structure and function of the eye of rabbits to see if this topical has any effect on the eye. The results also showed that LubanHeal has no irritation or inflammatory effect on the eyes of rabbits indicating that it has no toxic effects when applied topically. Finally, the efficacy of LubanHeal in wound healing was studied in albino rabbits. The results of the present studies showed that:

- LubanHeal has a potential healing effect that could reach up to 80%.
- LubanHeal has a vasoconstrictor effects on blood vessels and that was evident after 48 hours of treatment.

Finally, the product showed significant antibacterial effect against many gram-positive and gram – negative bacteria including Staphylococcus aureus ATCC 25923, ATCC 6538, Staphylococcus epidermis ATCC 12228 and Staphylococcus hominis ATCC 27844.

Figure (1).

Healing Paradigm

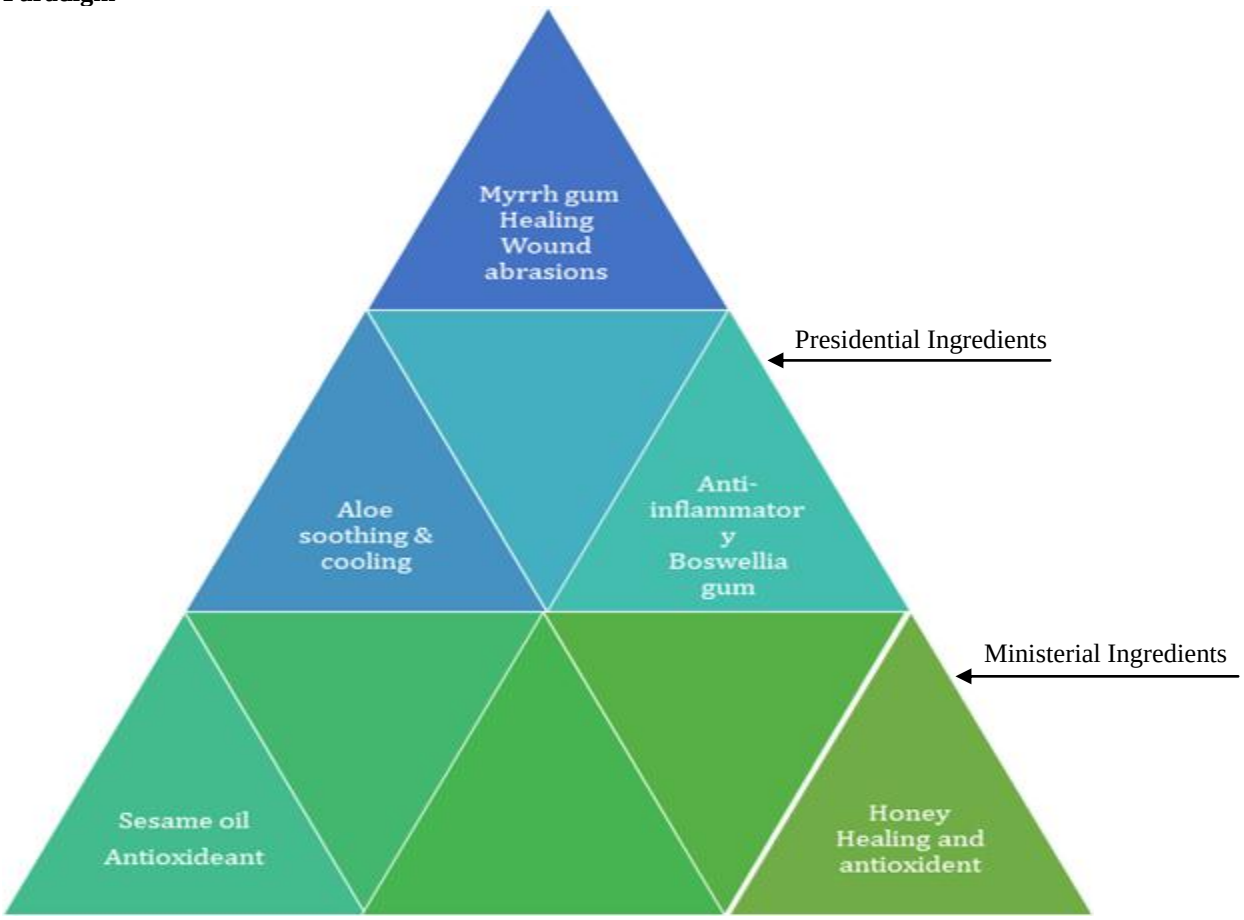

Figure (2).

The healing paradigm of this product (Figure 2) clearly suggest its application for both burns and wounds. Frankincense contains six boswellic and two lupeolic acids and other triterpenoid compounds. The pharmacological action documented for boswellic acids which play a very significant anti-inflammatory role by inhibition the production of inflammatory leukotrienes.

Myrrh resin in made up of alpha-, beta-, and gamma-commiphoric acids, heeraboresene, alpha-, and beta-heerabomyyrrhols and commiferin (Hoffmann), plus the soluble gum or mucilage compound mainly of acidic polysaccharide with galactose, 4-O-methyl glucuronic acid, and arabinose in a ratio 8:7:2. Is to be used as an effective antimicrobial agent, useful for the treatment of boils and arthritis and for healing wounds and abrasions.

Sesame oil contains fatty acids such as oleic, palmitic, stearic and linoleic acids. It's also very high in vitamins A&E and contains antioxidants and sesamol, which counteract free radicals (a primary cause of aging).

Aloe contains many compounds such as anthraquinones (Aloin and emodin), polysaccharides (glucomannans/polymannose, acemannan), minerals, enzymes, vitamins, fatty acids and others. It's effective in reducing postoperative pain both on resting and during defection both, has cooling, soothing, healing and analgesic effective.

Honey contains many compounds like carbohydrates(sugars), flavonoids and phenolic acids s and other compounds, it helps as antioxidant, anti-inflammatory and healing agent.

The medical and non-medical ingredients in LubanHeal work in an effective and synergistic way to support each of the claims, which on the other hand, support the healing paradigm.

RESULTS

LubanHeal topical product consists of unique blends of well-studied pharmacopoeia and monographic medicinal ingredients. These are Boswellia sacra, Commiphora myrrha, Aloe vera, sesame oil and honey. It showed a wide range of activities both in vitro, in vivo and in clinical tests. This product contains six boswellic and two lupeolic acids, diterpenoids, triterpenoids, steroids, lignans, aloin, emodin, sugars, flavonoids, phenolic compounds and others. This unique combination of ingredients potentiates their synergistic effect on the body. According to feedback received from clinician's who tested this product on patients suffering from burns and/ or wounds the product have remarkable effect in both burns and wounds. They reported simultaneous multiple actions as anti-inflammatory, analgesic,

antioxidant, antibacterial and healing benefits. It seems logical to interpret these findings based on the multiple ingredients present in this product which work in an effective way to support each claim, which on the other hand, support the healing paradigm.

Therapeutic values of LubanHeal Ointment

- Help as anti-inflammatory and analgesic.
- Help as antimicrobial, wound healing abrasions.
- Have antioxidant property.
- Have cooling and soothing effect.

Properties of LubanHeal

LubanHeal is a unique natural health product composed of an optimized extract obtained from Boswellia sacra gum resin using special extraction procedure and was characterized using HPLC/MS/MS method. It contains six boswellic acids and two lupeolic acids and other triterpenoid compounds. In addition, the product contains Myrrh extract plus sesame oil and honey. The pharmacological action of this extract showed potential anti-inflammatory, analgesic, antibacterial and healing effects. Therefore, the medicinal ingredients in LubanHeal work in an effective and synergistic way to support each of the claims, which on the other hand, support the healing paradigm.

Recommended use of purpose

1. Boswellia sacra extract have potential anti-inflammatory and analgesic effect.
2. Sesame oil has antioxidant effect.
3. Peppermint oil have anaesthetic and natural analgesic agent.

Side effects

No serious side effects were reported from using this product.

Contraindications

No contraindications were reported so far.

Direction for use

It is recommended to cleans the affected areas first and then apply LubanHeal 3-4 times daily.

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