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Review Article

Treatment of Lichen Planus-A Review

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Abstract

Abbreviations: CLP: Cutaneous Lichen Planus; OLP: Oral Lichen Planus; GLP: Genital Lichen Planus; HLP: Hair Lichen Planus; FFA: Frontal Fibrosing Alopecia; NLP: Nail Lichen Planus; LP: Lichen Planus; MLP: Mucosal Lichen Planus; TAO: Triamcinolone Acetonide; FAO: Fluocinolone Acetonide; KP: Keratosis Pilaris; LPP: Lichen Plano Pilaris

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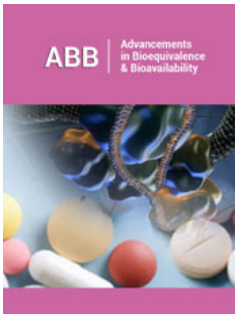

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Introduction

Lichen Planus (LP) is derived from two Greek words: "LEICHEN" meaning tree moss and "PLANUS" meaning flat. Lichen planus is chronic inflammatory dermatosis that comes in to play due to hyperactivation of immune system. As it is autoimmune disease, so immune system gets aggressive and targets the cell of skin or mucous membrane considering it as something strange or foreign. Basically, in LP, there is apoptosis of epithelial cells or mucosal membrane of skin by T-lymphocyte, but the etiology of LP is still unknown. Mostly middle-aged adult is affected by it. LP symptoms involve unbearable irritation on skin or mucous membrane and some sort of dark patches. Lesions are easily examined in this disease. To diagnose early stage of skin cancer, physicians prefer biopsy test [1]. LP lesions are claimed as six "P's" condition i.e. planar, purple, polygonal, pruritus, papule and plaque. Lesions are burdenized by the presence of Wickham striae on it. Wickham Striae are the network of white visible lines. For all types of LP, topical corticosteroids such as clobetasol is preferred as first line of treatment. In case of severity, systemic corticosteroids are also consumed [2]. Following are the clinical types of LP on the basis of site of involvement or targeted area.

A. Cutaneous Lichen planus

B. Mucosal lichen planus

a. Oral lichen planus

b. Genital lichen planus

C. Hair and Nail Lichen planus

Cutaneous Lichen Planus (CLP)

It targets the cutaneous site. In this condition, flexor surfaces of epithelial cells of skin are attacked by the immune system that is indicated by some sort of dark patch and rough scaly skin. Development of lesions also takes place which is shinny and purple in appearance with flat topped papule coated by network of lines named as Wickham striae. 6" P's" can also be seen in this state of LP [3]. There are several sub-divisions of cutaneous lichen planus (CLP) based on the type of lesion, morphology and site of involvement. These include:

a. Papular/classic CLP: Shiny lesion with red purple color

b. Hypertrophic CLP: Appear as red brown to purple-brown plaques

c. Vesiculo bullous CLP: Development of blisters within the plaque

d. Actinic CLP: Appearance of nummular patches or plaques

e. Annular CLP: Involves the male genitals, axilla & groin

f. Atrophic CLP: Diagnosis is difficult unless the classic LP is present, and symptoms are same as classic and hypertrophic LP

g. Linear CLP: Itchy, purple flat top papules develop which affect the skin and mucosa and this type is rarely found.

h. Follicular CLP: It is a rare CLP type which affects hair follicles.

i. Pigmentosus CLP: Usually develop in indians and tanned skin individuals with slaty-grey pigmentation pre-dominantly on the face [4].

CLP was treated by various methods. Corticosteroids and photo chemotherapy were used as the first line of treatment, but the results were not satisfactory so then topical retinoic acid and oral isotretinoin were recommended which show good result [5]. PUVA-bath photo chemotherapy (Psoralen Ultraviolet A- bath photochemotherapy) was used which shows very good result against the CLP and MLP (mucosal lichen planus) [6]. Acetritin (30mg daily for 8weeks) was used first but due to some problems, later on topical corticosteroids were recommended as first line of treatment but it does not completely cure the disease and becomes the reason of other systemic diseases. Keeping this in mind, systemic corticosteroids were recommended as second line of treatment which have increased therapeutic effect [7]. Tacrolimus ointments were used topically for MLP which the cause of CLP is [8]. Literature studies showed patients diagnosed with FFA (frontal fibrosing alopecia) associated with CLP have been recommended topical corticosteroids [9]. According to another research, patients having hair loss and scaly skin and diagnosed as CLP were given topical corticosteroids then systemic corticosteroids or tetracycline were recommended to them [10,11]. UVB (Ultraviolet B) is considered as safe and efficient treatment for cutaneous lichen planus [12] and thalidomide is also used for the treatment [13]. Betamethasone and Calcipotriol have also been used. Calcipotriol showed increased therapeutic effect than betamethasone besides that it also possesses numerous side effects like erythema and pruritus [14]. Moreover, another study showed clinical trials in 30 patients for the treatment of CLP by griseofulvin which showed efficacy in some patients while others developed new type of lesions or their disease worsened, so it was indicated that it needed more research [15].

Oral Lichen Planus (OLP)

OLP is a subtype of mucosal LP. It is an autoimmune state in which programmed death of basal cell of stratified squamous epithelium take place by cytotoxic CD8 + T cells which is followed by inflammatory lesions. OLP targets tongue, gingiva (gums) and buccal mucosa [16]. About 15% of the people sufferings from oral LP also suffer from skin LP at the same time [17].

OLP is an ongoing inflammatory disorder that affects mucous membrane of mouth appearing as white, lacy patches, red, swollen tissues or open sores, which may cause pain, burning and other discomforts [18-20].

Different studies have been done for the better treatment of oral lichen planus. Some herbal medicines with anti-inflammatory and antioxidant properties show efficacy in treatment [21]. Specifically, aloe vera which has properties of reducing pain of oral lichen planus, shows some extent of similar result as of steroids which are commonly given in oral lichen planus for reducing the pain [22].

Many authors have believed that corticosteroid is the only treatment for oral lichen planus. Synthetic retinoid like Etretinate (75mg daily), administered orally, is a common practice now a days, to be used for the improvements in oral lichen planus [23]. Moreover, some drugs like Fluocinolone Acetonide (FAO) give better and faster efficacy in signs and symptoms of OLP as compared to Triamcinolone Acetonide (TAO) [23]. Corticosteroids which are administered orally have severely extreme side effects compared to topically administered corticosteroids. According to many authors, topical corticosteroids like clobetasol and immune-suppressant agents like tacrolimus and cyclosporin show remarkable improvements in OLP indications [24-26]. Furthermore, methylene blue mediated photodynamic therapy (MB-PDT) is a possible alternative treatment for oral lichen planus in which gargling 5% methylene blue solution in water for 5minutes show efficacy in the treatment of OLP [27].

Genital Lichen Planus (GLP)

Genital Lichen Planus is also the subtype of mucosal lichen planus which targets the genital and extra-genital area and is responsible to cause irritation and burning sensation. This condition ultimately leads to the serious impairment of genital area and causes sexual dysfunction in both genders. In females, scars develop on their genital area and mainly clitoris gets affected. Narrowing of vaginal introitus (vaginal opening) also takes place. In male genital LP, severe inflammation takes place that directly leads to the dyspareunia and patient may also feel pain during urination. Sometimes this condition leads to the risk of development of squamous carcinoma. Ultra-potent topical corticosteroid is used as first line of choice [28,29]. Genital lichen planus has proved to be quite a nuisance ever since it evolved. In males, it is characterized by pink, shiny, flat topped papules on the glans and coronal sulcus. While on the other hand of argument, females experience distortion of anatomy with vaginal stenosis resulting in sexual dysfunction [30].

Penile lichen planus: Ultra-potent topical steroidal creams and immunosuppressant lotions such as tacrolimus, pimecrolimus are reflected as first line of treatment. Immunosuppressive therapy such as that of cyclosporine is elected when topical steroidal creams fail to combat with this menace. In acute affliction, surgical excisions stand as ultimate possibility [31-32].

Vulvo-vaginal Lichen planus: For mild afflictions, topical steroidal creams and lotions such as clobetasol as well as tacrolimus is also applicable. For severe infection, systemic corticosteroid and Retinoids such as Acitretin is fruitful. To combat profound infection, oral immune suppressants such as cyclosporine are administered. Literature studies have shown that chronic LP was remarkably treated with cyclosporine therapy (6mg/kg/day). Ultimate clearance of disease was accomplished after 8 weeks treatment [33].

Hair Lichen Planus (HLP)

Another type of lichen that damages or affects the hair and hair follicles is called Lichen Plano pilaris (LPP). Basically, LPP is rare, inflammatory and severe condition of patchy hair loss that is followed by keratosis pilaris (KP). In KP normal physiology for the development of keratin alters and its excessive development in hair follicles takes place which leads to hardness and thickness of epidermis of skin. Red bumps or lesions with itching and burning sensation develop on scalp [34]. Lichen plano pilarisis distinguished by follicular hyperkeratosis, perifollicular erythema, and loss of follicular orifices. Parietal and vertex area are involved in scalp lesion (scalp lesion may be single or multiple). Hair shedding, itching, burning, scaling, & tenderness are the symptoms of LPP [35]. LPP is rare inflammatory scalp disease in which women are more commonly affected than men [36].

Due to refractory nature of lichen plano pilaris, management is difficult [37]. During clinical forms 3 variants of LPP observed.

1. Graham-Little-Piccardi-Lasseur syndrome (Graham-Little syndrome, GLPLS).

2. Classic LPP

3. Frontal fibrosing alopecia (FFA) [progressive anterior hair loss of scalp linked with eyebrow loss [38].

There is no longer effective treatment of lichen Planipalas's [38]. But ultra-potent topical corticosteroid/intra-lesional corticosteroid can be used as 1st line of treatment. Oral corticosteroids and retinoid may be taken as 2nd line of therapy. Other drugs like cyclosporine, mycophenolatemofetil, and thalidomide can be used based on patient's condition and case report [38].

Nail Lichen Planus (NLP)

During 5th and 6th decay of life, nail lichen planus appeared [39]. Approximately 10% adult patients with cutaneous lichen planus have nail abnormalities [40]. In majority cases nail LP is not linked with skin or mucosal LP but patient with nail lichen planus have chances of development of severe and early destruction of nail matrix [39]. Permanent and temporary changes in nail plate depends upon scar production, size of lesion & intensity of inflammation [41]. The most specific nail abnormality in LP is the formation of dorsal pterygium, a raised, wedge-shaped deformity of the nail bed , while nonspecific changes of onychorrhexis, with longitudinal ridging, distal splitting, and thinning of the nail plate are also observed. Trachyonychia may also develop [42].

Nail lichen planus is self-limiting (NLP may be developed in other parts of the body) means can be promptly retrogress with treatment [43]. Due to the destructive nature of lichen planus early biopsy is necessary [41]. Instead of taking oral and parenteral corticosteroids (which is commonly used in LP), systemic / intralesional drugs should be taken as treatment of nail lichen planus to prevent permanent scarring. Optimal treatment is still not proper, that's why treatment of nail lichen planus is difficult [40].

Following are lines of treatment for all types of Lichen planus:

A. Potent topical corticosteroids are the first line of treatment for LP.

B. Systemic corticosteroids are used as a second line of treatment for LP.

C. Phototherapy used to treat CLP is given as third line of treatment [41].

Glucocorticoids are the class of corticosteroids that are responsible to fight with inflammation, autoimmune response, dermatitis, allergic reactions and many others. Corticosteroids show efficacy in treating many types of dermatoses effectively. Ointments of corticosteroids with different potencies give more amazing localized effect than creams. The high-lighted therapeutic activity of topical corticosteroids is its anti-inflammatory effect. Corticosteroids is the best antimitotic in order to prevent scaling of skin as it is responsible to inhibit the process of mitosis so that growth of lesions can be inhibited [40].

Glucocorticoids, the subclass of corticosteroids are immunosuppressant and anti-inflammatory. In case of severe skin diseases, it can be taken by oral or parenteral route. But it is second line of choice and can only be used in acute and chronic condition of skin diseases such as severity in lichen planus. Extended and excessive use of glucocorticoids medication gives rise to many possible side effects such as: osteoporosis, myopathy, osteonecrosis, lipidemia, high blood sugar levels, hyperpiesia, weight gain, mood swings, sleeplessness and GI problems [43]. The above side effects should be considered while prescribing corticosteroids such as Delta cortril that should only be prescribed in case of severity in this disease as a 2nd-line of treatment.

Conclusion

Main purpose of this review was to arrive at a conclusion regarding proper treatment of lichen planus. Both topical as well as systemic corticosteroids can be used in different types of lichen planus. The choice depends on the severity of disease and side effect profile.

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