

A Review of Allicin Based Topical Gel for The Treatment of Psoriasis

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Abstract:

Allicin are obtained from the raw garlic (*Allium sativum*). Allicin have Anti-bacterial Anti-inflammatory, and Immunomodulatory properties that are helpful in treating Psoriasis skin lesions topically, however allicin have less skin penetration and poor aqueous stability, its therapeutic use is less common. Topically acting drug may result is a best way because of penetration through the skin layers¹. Psoriasis may have multiple types like inverse, guttate, pustular, erythrodermic, Sebo, plaque and last nail psoriasis. psoriasis may affect both the genders equally. Psoriasis may not be completely treatable but the precaution can ace the effect of disease¹⁰.

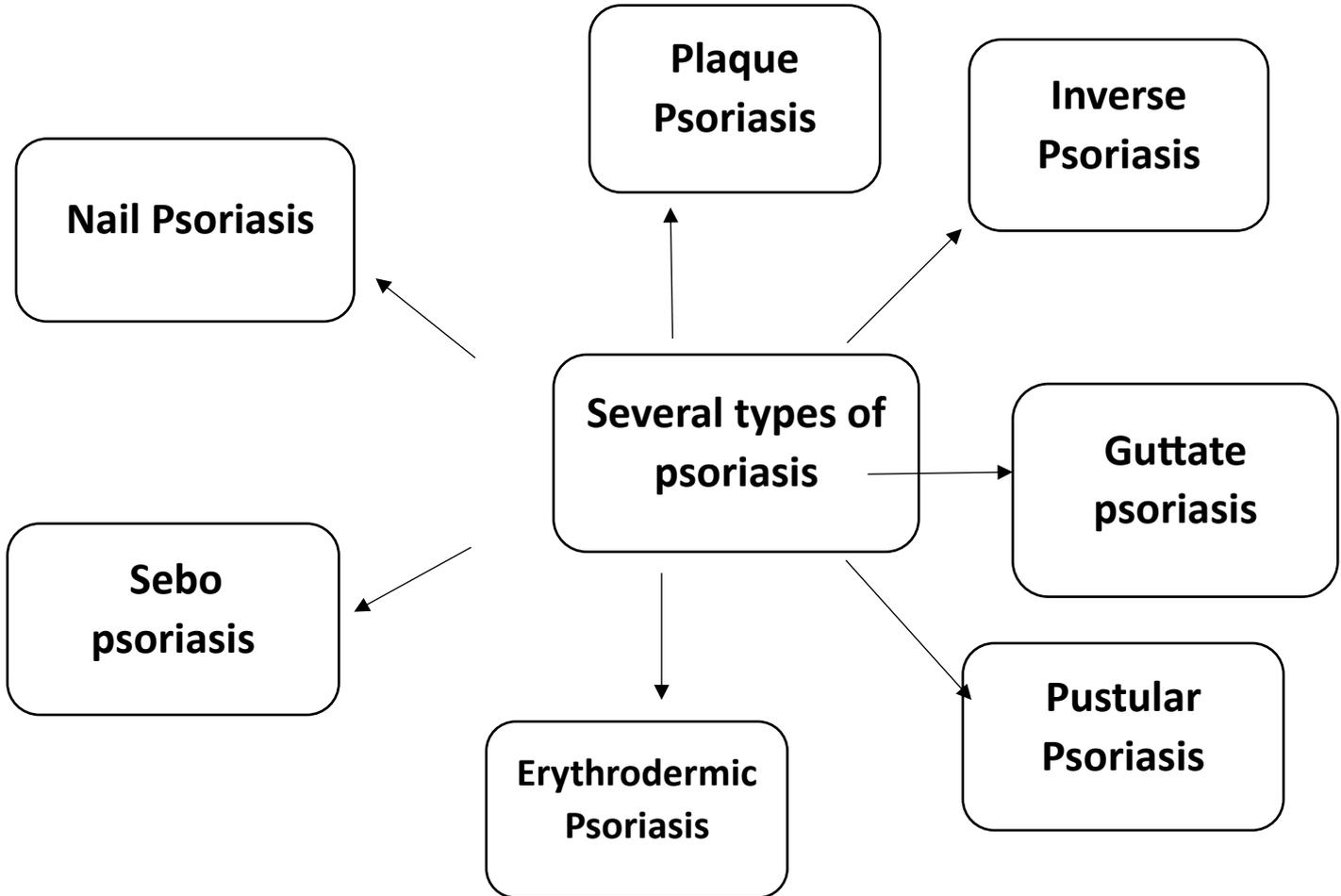
Key words: Psoriasis, Allicin, Anti-microbial, Anti-inflammatory, Immunomodulator, inverse, guttate, pustular, plaque, erythrodermic and Sebo.

1. Introduction:

Psoriasis is a sever Autoimmune disease. This is caused by the hyperproliferation of keratinocytes cell in the epidermis layer³. this can cause the inflammation, rashes with itching, red plaques, and scaly skin surface. This are most commonly on the Kness, elbow, trunks and scalps. Psoriasis can painful and may interfere with the sleep. This can go through the few weeks to months. Psoriasis is commonly triggered in people with a genetic history of psoriasis and maintaining low hygiene².



1.1 Types of Psoriasis:



1. Plaque Psoriasis:

Plaque Psoriasis is generally occurring type of Psoriasis, about 80-90 % people suffer through this Psoriasis. This is characterized by growing the inflamed, red patches covered with silvery-white scales. they are generally Happen in a site, like scalp, elbow, knees and back. some time they can cause the burning sensation and itching⁴.

2. Inverse Psoriasis:



This Psoriasis are generally Grow in the folding of skin like armpits, groin, under breasts and genitals. It can cause thin plaque but without the scales, they are smooth shiny and red. And are grow by frictions and sweats⁴.



3. Guttate Psoriasis:

Guttate Psoriasis commonly appears after a streptococcus cause the sore throat. It appears as the small, drop shaped lesions in the area of trunk, arms, legs and scalp. They are mostly common in children and young adult peoples. This Psoriatic Lesions are smaller than plaque Psoriasis⁵.



4. Pustular Psoriasis:

Pustular Psoriasis are tiny bumps that are filled with the pus on top of plaques that are non-infectious and sterile. They mainly affect the hand and feet area. They are most serious form and may cause flu, fever, chills, dehydration, and a rapid pulse⁵.



5. erythrodermic Psoriasis:

Erythrodermic Psoriasis are a severe and rare kind of Psoriasis that affects a mostly about 90 % of the skin surface. This can cause the skin discoloration and skin shedding⁴. This can cause severe itching, pain and skin peeling. This Psoriasis may be some time life threatening due to excessive loss of fluids, proteins⁵.



6. Nail Psoriasis:

This Psoriasis can be occurred in finger nails and foot nails. Nail Psoriasis can cause skin discoloration, pitting and changes in strength of the nails⁵.



7. Sebo Psoriasis:

This type of Psoriasis typically appears on face and scalps of skin as a bumps and plaque with greasy and yellowish scale, this can also affect the hairlines. This can cause itching and flaking (looking like a dandruff)⁶.



2. Epidemiology:

Globally Psoriasis can affect nearly a 2-3% of the population and prevalence and severity differs according to the areas¹. According to reports prevalence in different population may varies in between 1-11%². The studies of data state that

prevalence of the Europe and USA region is higher than the others it is around 4-4.6%, and while in Canada it was 4.7%. in the Asian countries it may vary from 0.5-2.5%⁸. Psoriasis may occur in any age groups but disease manifest in a two category: (1) Early onset: This Psoriasis infect the age group of 15-30. (2) Late onset: This Psoriasis infect the age group of 50-60. This can affect the both genders equally^{2,7}. Psoriasis can also occur by family tendency towards the Psoriasis. Psoriasis can increase the risk of some conditions like; Obesity, Type 2 diabetes mellitus, Hypertension etc. some disease like risk of heart attack, stroke and atherosclerosis, mental depressions, anxiety and worsen Psoriasis⁷. According to study 80million people have psoriasis in America⁹.

3. Etiology:

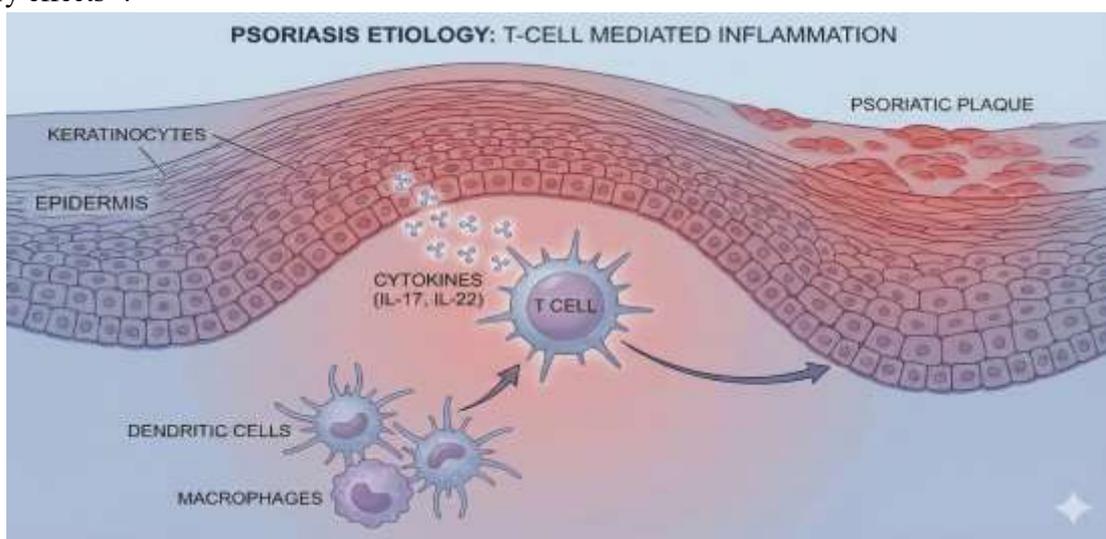
Psoriasis is caused by multiple factors like the genetic hereditary, overactive immune system and some environmental factors². Psoriasis is also caused by some microorganisms like Streptococcus pyogenes and Staphylococcus aureus¹. Psoriasis is autoimmune disease where T-cell mistakenly attack healthy skin cells, Rapid increase in growth of cells that can build up a plaque on surface of the skin³. HLA-Cw6 allele is the major psoriasis causing antigen generated by T-cells but this can be disposed by genetic history of patients^{1,3,5}.

4. Clinical Approches for Psoriasis

Psoriasis is clinically diagnosed with the help of investigation and observation of skin conditions with white & red plaque with inflammation and pain in all over the body but mainly in the elbow, knee scalps and genitals. The patient with genetic history with Psoriasis Plaque should be under the special observations¹. Patient Suffering from the Psoriasis can go through some special psychological distress one out of five Patients, they feel the socially disconnected with the other peoples⁴.

4.1 Topical gel Approach to treat the Psoriasis:

Using a topical gel in Psoriasis Patients are very useful and new technique because this is Reduces the systemic side effects as well as to resist the hepatic degradation of the orally active drugs. The topical gel containing allicin is rich in sulfur and are very useful in the effective treatment of psoriasis by its Anti-microbial, Anti-oxidant as well as its anti-inflammatory effects¹¹.



The Allicin based topical gel provide the safe, effective, local & systemic topical relief to the Psoriasis. In the topical agent of Allicin some Excipient are used to carry the drug in local site of action. Carbopol are used as the gelling agent

for making the uniform texture of gel⁶. Carbopol provide the desired thickness to the gel for locally sustain for a while. Polyethylene glycol is widely used agent for the spreading of gel into local site to provide the uniform quantity should be spread over the surface. Triethanolamine are used for neutralizing the pH of the gel increased by use of Carbopol. Ethanol is also mix with the mixture to Enhance the penetration of gel. Sodium Cholate are used as the surfactant and the edge activator in the Allicin gel. In last some water for mixing of gel and for required gel viscosity and bulk^{10,11,5}.

5. Conclusion:

This study is successfully Achieve that allicin is show the Anti-inflammatory, Anti-microbial, Anti-oxidant effects that can treat many other Disease other than the Psoriasis but this study is only focused on the Psoriasis. Psoriasis is well observed in this study for desired therapeutically active agent are made from the Allicin. This study results to show the effect of Excipient used in the formulation of gel, Carbopol 934 are used for gelling and viscosity enhancer, polyethylene glycol can be a spreading coefficient, triethanolamine are used as neutralizing agent and ethanol as penetration enhancer.

This Study aims to provide the best and convenient dosage form for easy and effective treatment of Psoriasis while minimizing its systemic side effects. This study makes the differences to understand about the Psoriasis and its management in the normal peoples.

6. Result:

The study of formulation of Allicin based topical gel to treat the Psoriasis are successfully completed. This study tells us what Psoriasis is and its effect in the body also its types would be well defined and. In this study discuss about the clinical management and sources to treat the Psoriasis. Etiology and Epidemiology should be well explained in this study and all aspects is covered in the study.

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