ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 12| December 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402 || ISI Value: 1.188

REVIEW ON DERMATOLOGICAL DISORDER ACNE AND REPORTED DRUG FOR ITS TREATMENT

Ms. Pratiksha Gajanan Gaikwad[1], Datta G. Korde[2]
[1]Student of Bachelor of Pharmacy, Raosaheb Patil Danve College of Pharmacy Badnapur Jalna
[2]Asst. Prof.(Faculty of P' Chemistry) Raosaheb Patil Danve College of Pharmacy Badnapur Jalna
Raosaheb Patil Danve College of Pharmacy Badnapur Jalna 431202

ABSTRACT

- *Review focuses on the treatment options for adult female patients with acne.*
- *Acne in adult female patients may start during adolescence and persist or have an onset in adulthood.*
- *Acne has various psychosocial effects that impact patients' quality of life.*
- *Treatment of acne in adult women specifically has its challenges due to the considerations of patient preferences, pregnancy, and lactation.*
- *Treatments vary widely and treatment should be tailored specifically for each individual woman.*
- *We review conventional therapies with high levels of evidence, additional treatments with support from cohort studies and case reports, complementary and/or alternative therapies, and new agents under development for the treatment of patients with acne.*

1. INTRODUCTION

Acne is a skin disorder that suppresses an individual's self-esteem with regard to physical appearance and has a clinical onset during puberty and adolescence .

A high incidence of acne is found in girls aged 14–17 and in boys aged 16–19.

The pathogenesis of acne is regulated by sebum hypersecretion in deformed follicles, which leads to microcomedones, and the follicular hyperproliferation of microcomedones causes inflammation.

In Both open and closed types (black and white comedones) appearing in papules, pustules, nodules and cysts.

The resulting skin condition with sebum enrichment is prone to the anaerobic growth of Propionibacterium acnes, which is the main causative microorganism in acne. In addition, Staphylococcus epidermidis and Pitryosporum ovale are present in acne lesions.

Proliferation of these microorganisms, mainly P. acnes, leads to inflammatory lesions and severe acne.

The primary goal of acne treatment is to effectively manage and address current acne lesions, aim to prevent the formation of permanent scars, shorten the duration of the condition, and minimize the frequency of recurrence.

Traditional treatment methods include topical and systemic use of antibiotics and retinoids, oral anti-androgens, phototherapy, and chemical peeling, depending on the individual's specific case, taking into account factors such as the type and severity of acne lesions, overall health status, and any potential side effects.

Topical drugs are generally recommended as the first-line treatment for mild acne patients, like retinoic acid, benzoyl peroxide, and topical antibiotics.

And for moderate to severe acne, a combination of topical drugs, systemic drugs, and phototherapy is often recommended to achieve better outcomes .

In recent years, there has been significant progress in the development of novel therapies for acne, targeting various pathogenic mechanisms.
These new treatments offer promising results and have generated significant interest.

This article aims to review the recent research progress in acne treatment, highlighting the innovative approaches and potential benefits for patients.

Sign and Symptoms

- Small red, tender bumps (papules).
- Pimples (pustules), which are papules with pus at their tips.
- Large, solid, painful lumps under the skin.

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 12| December 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402 || ISI Value: 1.188



Fig.1

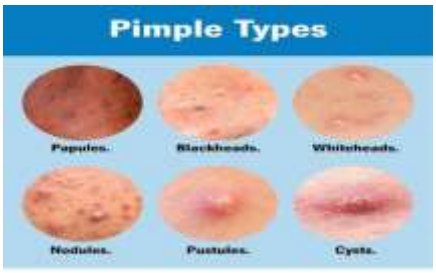


Fig.2

3.LITRATURE REVIEW

- Bedi and Shenefelt et. al.,(2002):

In India, records of Ayurvedic medicine date back to about 3000 BC. The system of Ayurvedic medicine combines physiological and holistic principles.

It is based on the concept that the human body consists of five energy elements that also make up the universe: (1) earth, (2) water, (3) fire, (4) air, and (5) space.

The interactions of these five elements give rise to the three doshas (forces), seven dhatus (tissues), and three malas (waste products).
All diseases are attributed to an imbalance among the three doshas .

- Routh and Bhowmik et. al., (1999)

Diagnosis is made by an elaborate system of examining the physical findings, pulse, and urine, as well as by an eightfold detailed examination to evaluate both the physical and mental aspects of the condition. The treatment is then tailored to suit an individual based on the findings.

- Bhate and Williams, 2013

AV is an extremely common condition with a lifetime prevalence of approximately 85% and occurs mostly during adolescence .

- Collier et al., 2008

AV can persist into adulthood, with a 50.9% prevalence rate of acne in women ages 20 to 29 years versus 26.3% in women ages 40 to
49 years .

- Yentzer et al., 2010

Female patients account for two thirds of visits made to dermatologists for acne, and one third of all dermatology office visits for acne are by women who are older than 25 years .

4. AIM : A REVIEW ON DERMATOLOGICAL DISORDER ACNE AND REPORTED DRUG FOR ITS TREATMENT **.**

❖ **OBJECTIVE**

- A Salicylic acid: It works by penetrating the hair follicle and oil glands and dissolving the acne causing blockages of dead skin cells oil and other debris.
- Alpha hydroxy acid: It works by drying up white heads,black heads, and pimples and causing the top layer of your skin to peel.
- Benzoyl peroxide: It has been an important component of topical therapy for acne vulgaris for more than five decades due to its ability to markedly reduce Propionibacterium acnes and inflammatory acne lesions and its ability to moderately reduce non-inflammatory acne lesions.
- Aloe-vera:It has been antibacterial properties that can helps to control and reduce acne causing bacteria.Two other ingredients that have been studied and found to have this same effect are cinnamon and honey.By combining all three for an at home spa treatment,you'll be upping your chances at smooth skin that's acne free.

5. PATHOGENESIS OF ACNE

- **Williams et al., 2012, Zaenglein et al., 2016**

Four key pathogenic processes lead to the formation of acne lesions: alteration of follicular keratinization that leads to comedones;
increased and altered sebum production under androgen control;
Follicular Colonization by Propionibacterium acnes;
and complex inflammatory mechanisms that involve both innate and acquired immunity .
Genetics (twin studies Bataille et al., 2002, family history of severe acne Wei et al., 2010),
Diet (Glycemic index Ismail et al., 2012, Kwon et al., 2012, Smith et al., 2007a, Smith et al., 2007b, Smith et al., 2008).
including chocolate (Grant and Anderson, 1965, Magin et al., 2005) and dairy consumption .
(Adebamowo et al., 2006, Adebamowo et al., 2008, Di Landro et al., 2012);
and environmental factors.
(smoking Klaz et al., 2006, Schafer et al., 2001, occlusive cosmetics Plewig et al., 1970, occupational exposures Tucker, 1983) also contribute to the pathogenesis of acne.

Harper, 2008, Lucky et al., 1994, Lucky et al., 1997
The pathogenesis of acne in adult women is particularly complex. Androgens play a major role (Harper, 2008, Lucky et al., 1994, Lucky et al., 1997).

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 12| December 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402 || ISI Value: 1.188

As Evidenced by the response of acne in adult women to hormonal treatments, especially in the context of hyperandrogenism disorders such as polycystic ovary syndrome (PCOS) and the use of hormone-based therapies such as oral contraceptive and anti-androgen medications in women with normal androgen levels (Lolis et al., 2009).

In addition, the lack of acne in androgen-insensitive women (Imperato-McGinley et al., 1993, Thiboutot, 2004).

and rising levels of dehydroepiandrosterone sulfate in association with the onset of acne in premenarchal girls and a subset of patients with PCOS also play a major role (Lucky et al., 1994, Chen et al., 2011).

Androgens stimulate sebum production via androgen receptors on the sebaceous glands.

6.CUSES

Doctors and researchers believe that one or more of the following can lead to the development of acne:

- Excess or high production of oil in the pore.
- Buildup of dead skin cells in the pore.
- Growth of bacteria in the pore.

The following factors may increase your risk for developing acne

- **Hormones**
  An increase in androgens, which are male sex hormones, may lead to acne. These increase in both boys and girls normally during puberty and cause the sebaceous glands to enlarge and make more sebum. Hormonal changes related to pregnancy can also cause acne.
- **Family History**
  Researchers believe that you may be more likely to get acne if your parents had acne.
- **Medications**
  Certain medications, such as medications that contain hormones, corticosteroids, and lithium, can cause acne.
- **Age**
  People of all ages can get acne, but it is more common in teens

7. PLANTS AND THEIR INGREDIENTS WITH ANTI ACNE PROPERTIES

- **Neem**

◆ Neem (azadirachta indica) is another popular Ayurvedic herb. According to a 2010 study, neem oil contains compounds that are:

- Antibacterial
- antifungal
- antiseptic
- antioxidant
- anti-inflammatory

- **Aloe Vera**

A soothing hydrator with anti-inflammatory and antibacterial properties.

- **Lavender**

An antiseptic and anti-inflammatory herb that can help heal acne.

- **Tea tree**

An antiseptic that can help with acne.

- **Rose**

A popular botanical skin care ingredient that can be used to moisturize dry skin.

- **Cinnamon and Honey**

- Contain antioxidants and have antibacterial and anti-inflammatory properties.
- You can mix two tablespoons of honey and one teaspoon of cinnamon to create a face mask.

8. CHALLENGES IN ACNE TREATMENT

- The management of acne is a long-standing process which must be customized to each patient.
- After the diagnosis of the disease, a suitable therapeutic strategy is the root of its treatment.
- Based on the type and severity of acne, the selection of proper medication depending on its mechanism of action relating its ability to address one or more of the pathogenic factors is the major challenge allied with its treatment selection.
- In this context, treatment of acne renders several challenges inspite of numerous therapeutic agents available.

● **Antibiotic Resistance**

- The persistent relevance of antibiotics in acne treatment is coupled with the risk of emerging resistant bacteria.
- The increase in antibiotic resistance is multifactorial, involving the specific nature of the relationship of bacteria to antibiotics. Consequently, there are adequate motives to search for alternative remedies to solve this problem.
- To overcome antibiotic resistance as well as the high treatment cost, medicinal plants have been studied as alternative treatments for acne.

● **To Surmount the Glitches Allied with Conventional Formulations of Antiacne Drugs**

- The followup phase of management requires a framework for approaching treatment modification that may include concepts such as nonexistence of effectual system for delivery of antiacne drugs.
- Antiacne drugs incorporated in conventional system either cannot reach the pilosebaceous unit at defined concentration or may not release the active moiety leading to their subtherapeutic levels
- . The problem can be resolved by employing futuristic approaches that is targeting the active molecule directly to the pilosebaceous unit or sebaceous gland which can

ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 12| December 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402 || ISI Value: 1.188

eradicate the underlying microbial flora of *P. acnes* and inflammatory mediators responsible for acne vulgaris.

- Novel drug delivery system (NDDS) may be a preference to minimize the glitches related to conventional formulations like variation in drug efficacy and absorption, physicochemical characteristics of the active molecules and carriers or their improper incorporation in the conventional vehicles.

9. FEATURE TREATMENTS

- **Reducing Inflammation**

- By targeting cytokine pathways and using energy-based devices to target the sebaceous glands .

- **Preventing Scarring**

- By using immunity induction and wound healing therapies.

- **Regulating Sebocyte Differentiation**

- A novel therapeutic procedure based on acne pathogenesis.

- **Considering Diet**

- A Western diet may promote acne, while a paleolithic diet may help.

- **Other potential treatments include**

- Topical anti-androgens
- Melanocortin receptor antagonists
- IGF-1 inhibitors
- PPAR modulators
- Acetylcholine inhibitors
- Topical retinoic and metabolism-blocking agents

- Acne is a chronic inflammatory skin disease with many causes.
- Treatment varies by age, type, and severity of acne.
- A healthcare provider may recommend topical or oral medications, or medicated therapies.

- **Some self-care tips for managing acne include**

- Using gentle, alcohol-free skin care products
- Avoiding products that irritate your skin
- Sticking to your treatment
- Keeping your hands off
- Staying out of the sun and tanning beds

PLAN OF WORK

Literature search: PubMed, Scopus, Web of Science (2010-2022).

⇩

Inclusion criteria: Randomized controlled trials (RCTs), observational studies, and reviews.

⇩

Exclusion criteria: Non-English articles, case reports, and studies on non-acne vulgaris.

10. SUMMARY / CONCLUSION

Many herbal therapies have been used for centuries, which show good anecdotal results. A few randomized, controlled trials have also demonstrated significant results in the use of herbal therapies for the treatment of dermatologic disorders.

Some countries, such as Germany, now require standardization of herbal preparations and specific recommendations as to the use and efficacy of herbs in the treatment of disease.

It is important to know what common herbal alternatives exist and which potential adverse effects or interactions can occur to permit more effective counseling of patients.

11. REFERENCES

1. *Armstrong N.C, Ernst E. The treatment of eczema with Chinese herbs: A systematic review of randomized clinical trials. Br J Clin Pharmacol. 1999;48:262–4.*
2. *Abascal K, Yarnell E. Botanicals for chronic venous insufficiency. Altern Complement Ther. 2007;13(6):304–11.*
3. *Atherton D.J, Sheehan M.P, Rustin M. H. A, Whittle B, Guy G. Treatment of atopic eczema with traditional Chinese medicinal plants. Pediatr Dermatol. 1992;9:373–5.*
4. *Aziz H.A, Peh K.K, Tan Y.T. Solubility of core materials in aqueous polymeric solution effect on microencapsulation of curcumin. Drug Dev Ind Pharm. 2007;33(11):1263–72.*
5. *Baba M, Shigeta S. Antiviral activity of glycyrrhizen against Varicella zoster virus in vitro. Antiviral Res. 1987;7:99–107.*