

## STUDY OF TOPICAL AGENTS WITH PEELS VERSUS TOPICAL AGENTS ALONE IN MANAGEMENT OF ACNE IN A TERTIARY CARE INSTITUTE.

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**Abstract:** Acne vulgaris is a common chronic inflammatory disease of the skin. It is found in about 80% of young adults and adolescents. It causes discomfort, emotional stress, disfigurement and even permanent scarring to the skin. It may also cause anxiety and embarrassment in patients and may diminish the patient's physiological and social wellbeing. Mild acne is often treated with topical retinoids, or a variety of diverse treatments such as azelaic acid, salicylic acid and benzoyl peroxide. **Material & methods:** Eighty six patients with mild to moderate facial acne were selected for this study after informed consent. Group A received topical adapalene and 1% clindamycin daily along with 40% pyruvic acid peel once in two weeks for total period of 3 months. Group B received topical adapalene with 1% clindamycin daily without peel for a period of 3 months. **Results:** Results were analyzed by Chi-square test. In Group A 36 patients and in group B 38 patients completed the treatment. Four patients in group B developed local irritation to adapalene. Among 36 patients in group A, 80% showed complete clearance in 12 weeks. **Conclusions:** In this study we conclude that, topical adapalene, clindamycin with pyruvic acid peel combination showed an early reduction of acne lesions when compared topical adapalene and clindamycin alone.

**Keywords:** Acne, adolescent, Adapalene, Pyruvic acid etc.

**Introduction:** Acne vulgaris is a common chronic inflammatory disease of the skin. It is found in about 80% of young adults and adolescents. Acne in Indian scenario is entirely different from western countries.

It is a disease that affects the pilosebaceous units of the skin and may result in inflammatory or non-inflammatory lesions [1-3]. Strauss et al defined acne as a chronic inflammatory dermatosis which consists of open comedones (blackheads), closed comedones (whiteheads) and inflammatory lesions such as nodules, pustules and papules [4].

In recent years, acne has been observed in younger patients due to the earlier onset of puberty. In most cases, acne disappears within the patient's early twenties; however, acne may persist into adulthood which usually occurs more often in females. Acne has many negative effects on young adolescents. It causes discomfort, emotional stress, disfigurement and even permanent scarring to the skin. It may also cause anxiety and embarrassment in patients and may diminish the patient's physiological and social wellbeing [5,6]

Mild acne is often treated with topical retinoids, or a variety of diverse treatments such as azelaic acid, salicylic acid and benzoyl peroxide. Mild to moderate inflammatory acne can be treated with topical anti-inflammatory agents as well as topical antibiotics.<sup>9</sup> Chemical peeling become an adjuvant in the management of acne. Variety of superficial, medium depth peels with varying concentrations have been widely studied. Starting from sour milk, lactic, glycolic, salicylic, trichloro acetic acids were showed promising results with early clearance of acne and prevention of recurrences. Hence the alternative mode of therapies like pyruvic acid peeling was introduced in our study group to assess the efficacy of pyruvic acid peel in the clearance of acne along with cosmetically [7] appreciable amount of reduction in the pigmentation. Most of the cases of post inflammatory pigmentation was managed [8] with triple combination of Kligman Formula to which contains steroid and the patient encounter acneform eruption as a result of steroid abuse. There are several physical invasive treatments available which can be used as adjunctive acne treatment with Comedone Extraction, Cryoslush Therapy, Cryotherapy, Electrocauterization, Intralesional Corticosteroids. laser therapy, light sources and photodynamic therapy. To compare the efficacy of topical preparation of adapalene and clindamycin along with pyruvic acid peel versus topical adapalene and clindamycin management of mild to moderate acne.

**MATERIALS AND METHODS:** Eighty six patients with mild to moderate facial acne were selected for this study after informed consent. Age group of patients in our study was 12 to 30 years of age. They were divided into two groups of forty three patients each who were selected randomly. Group A received topical adapalene and 1% clindamycin daily along with 40% pyruvic acid peel once in two weeks for total period of 3 months. Group B received topical adapalene with 1% clindamycin daily without peel for a period of 3 months. One fingertip unit of adapalene was applied at night as a thin film over forehead, cheeks, chin and nose. The periorbital, para nasal and perioral areas were avoided. Adapalene was washed in three hours. Next morning patient was advised to apply a thin film of clindamycin which was retained till evening. For group- A, 40% pyruvic acid peel was applied in addition by the investigator under supervision which was repeated once in three weeks for twelve weeks. Usual steps were followed for peel procedure. Peel procedure was completed in 4 minutes. In these patients topical preparations were stopped two days prior and two days after peel procedure. Patients from both groups were followed up once in three weeks for up to twelve weeks. Lesions were counted and were recorded as per investigator's global evaluation scale. Local irritation scale was used for evaluation of tolerability and safety. An assessment of skin tolerance was also conducted at each review with respect to oiliness, erythema, scaling, pruritus and dryness, (graded from 0-nil, 1-mild, 2-moderate to 3-severe). Regular photographs were taken.

**Result & Discussion:-** Out of 86 patients enrolled, 49 were females and 37 were males Results were analysed by Chi-square test. In our study 49 patients were female and 37 were males. Incidence of acne is more in females as there is more hormonal and physiological changes in females as compared to male. In Group A 36 patients and in group B 38 patients completed the treatment. Four patients in group B developed local irritation to adapalene. Among 36 patients in group A, 80% showed complete clearance in 12 weeks. Global evaluation of improvement was excellent in Group A. There was a significant difference

between the two groups with significant P value. Due to the various pathological factors responsible for acne development, the use of multimodal therapy which targets different processes simultaneously has been receiving considerable attention[9] Combination products have been found to be more effective in treating acne than monotherapy [10]. Additionally, the availability of existing and introduction of new fixed combination treatments can increase patient adherence as the treatment for patients can be more personalized [9]. Physical removal of microcysts, macrocomedones or closed comedones will enhance the therapeutic efficacy of topically applied comedolytic agents. It has also been suggested that benzoyl peroxide and salicylic acid, which have different mechanisms of action, be combined to treat acne due to their complementary effect when used together [11].

Benzoyl peroxide is an important treatment for mild to moderate acne and, although it can be used as monotherapy for a period of 6–8 weeks, is often combined with topical antibiotics in order to reduce the resistance of the P. acnes species and to increase the efficacy of treatment. Gollnick and Krautheim suggested that benzoyl peroxide is best combined with topical retinoids[12] However, it has been found that all retinoids (except for adapalene) are unstable when combined with benzoyl peroxide and should therefore be applied separately.

	Week 00	Week 03	Week 06	Week 09	Week 12
Group A	Grade 3				
Group B	Grade 3				



Picture 01 - Group 01 before and after treatment.



Picture 02- Group 01 before and after treatment.



Picture 03- Group 02 before and after treatment.

**Conclusions:** In this study, we conclude that, topical adapalene, clindamycin with pyruvic acid peel combination showed an early reduction of acne lesions when compared topical adapalene and clindamycin alone. In the inflammatory lesions topical adapalene, clindamycin with pyruvic acid peel combination showed a more significant reduction of lesions and better efficacy than topical adapalene and clindamycin alone. Noninflammatory and total lesion count showed comparable efficacy in reduction of lesions between the two groups. In addition to reduction in acne lesion by treatment with adapalene and clindamycin, pyruvic acid peel reduces skin hyper pigmentation which helps to obtain a glowing skin. In pyruvic acid peel group, follow up of patient was regular because of its beneficial results when compared to topical adapalene and clindamycin alone. Pyruvic acid is easy to apply, which

can be left for a longer time is well suited for greasy skin and for mild to moderate acne. Timely application of peels along with anti-acne preparations also decreased scar formation in such patients. We recommend pyruvic acid peel for better compliance and efficacy.

**Reference:**

1. Bershad, S.V. The modern age of acne therapy: A review of current treatment options. *Mt Sinai J. Med.* 2001, 68, 279–285.
2. Dessinioti, C.; Katsambas, A.D. The role of *Propionibacterium acnes* in acne pathogenesis: Facts and controversies. *Clin. Dermatol.* 2010, 28, 2–7.
3. Krautheim, A.; Gollnick, H.P.M. Acne: Topical treatment. *Clin. Dermatol.* 2004, 22, 398–407.
4. Strauss, J.S.; Krowchuk, D.P.; Leyden, J.J.; Lucky, A.W.; Shalita, A.R.; Siegfried, E.C.; Thiboutot, D.M.; van Voorhees, A.S.; Beutner, K.A.; Sieck, C.K.; et al. Guidelines of care for Acne vulgaris management. *J. Am. Acad. Dermatol.* 2007, 56, 651–663.
5. Akhavan, A.; Bershad, S. Topical acne drugs. *Am. J. Clin. Dermatol.* 2003, 4, 473–492
6. Feldman, S.; Careccia, R.E.; Barham, K.L.; Hancox, J. Diagnosis and treatment of acne. *Am. Fam Physician* 2004, 69, 2123–2130.
7. Indian Fitzpatrick Skin Type. *Dermatol.* 2005; 49: 31-38.
8. Zeinab Tosson, Enayat Attwa and Sahar. Pyruvic acid as new therapeutic peeling agent in acne Melasma and Wart. *Egyptian Dermatology.* 2006;2(2):7.
9. Krakowski, A.C.; Stendardo, S.; Eichenfield, L.F. Practical considerations in acne treatment and the clinical impact of topical combination therapy. *Pediatr. Dermatol.* 2008, 25, 1–14
10. Bhate, K.; Williams, H.C. What's new in acne? An analysis of systematic reviews published in 2011–2012. *Clin. Exp. Dermatol.* 2014, 39, 273–278.
11. Elman, M.; Lebzelter, J. Light therapy in the treatment of Acne vulgaris. *Dermatol. Surg.* 2004, 30, 139–146
12. Gollnick, H.P.M.; Krautheim, A. Topical treatment in acne: current status and future aspect. *Dermatology* 2003, 206, 29–36.