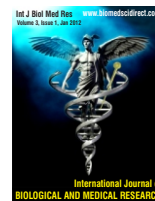


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Original article

A cost-effective analysis of topical treatment of acne in Dr.B.R.Ambedkar medical college, bangalore

Padma L*, Kumari Bai C*, Madan Mohan N.T**, Ranjani Ramanujam*, Komala R*.

*Department of Pharmacology, Dr. B. R. Ambedkar Medical College, Bangalore.

**Department of Dermatology, Dr. B. R. Ambedkar Medical College, Bangalore.

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ABSTRACT

BACKGROUND: Acne is a chronic inflammatory disease of the pilosebaceous gland found on face, neck, chest and back which is caused by propionibacterium acnes. Acne is highly prevalent in adolescents and adults. This affects not just the psychological well-being of the individual, but can also have a bearing on the economic aspects of the individual as well as the family, since the treatment is prolonged (at least for 4-6 months). Currently, the topical treatment for grade I and grade II acne are retinoid, antibiotics, benzoyl peroxide, and salicylic acid. Considering these aspects, we undertook a cost-effectiveness study of acne therapy to understand the latter's economic impact on the patient and his or her family. **AIM:** To study the therapeutic costs in acne and economic benefit of the therapy in tertiary care hospital. **OBJECTIVE:** To study the cost-effectiveness of topical drugs used in the treatment of acne. **MATERIALS AND METHODS:** The prescriptions from the outpatient department of dermatology in a tertiary care hospital will be reviewed between 1st June 2012 to 31st August 2012, to assess the cost-effectiveness of topical therapy for mild-to-moderate acne. **RESULTS:** The most economical drug for topical treatment of acne is Erythromycin. Among topical retinoids, tretinoin was the most economical option. Among combination therapy, tretinoin 0.025% + clindamycin 1% gel is preferred as it is more economical.

CONCLUSION: Acne Vulgaris require prolong treatment, though Erythromycin is most cost effective, its treatment as monotherapy is limited. Thus cost is not a sole deciding factor for treatment of acne. Therefore combination therapy with Tretinoin with Clindamycin is preferred.

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1. Introduction

Acne is a chronic inflammatory disease of the pilosebaceous glands found on face, neck, chest and back which is caused by *Propionibacterium acnes*. It is the most common skin disorder worldwide and occurs primarily at puberty with a prevalence of almost 95%. Although acne is principally a disorder of adolescence, the prevalence of adult patients with acne is increasing, this affects not just the psychological well being of the individual, but also has a bearing on the economic aspects of the individual as well as his/her family, since the treatment is prolonged (at least for 4-6 months).

This study was conducted to evaluate the cost analysis of drugs used in the topical treatment of acne grades 1 and 2. Currently, the most commonly used drugs for topical treatment are retinoids, antibiotics, benzoyl peroxide and salicylic acid.[1]

OBJECTIVE: To study the cost-effectiveness of topical drugs used in the treatment of acne.

* Corresponding Author : **Dr. Kumari Bai. C**
PG/Tutor in Department of Pharmacology,
Dr. B. R. Ambedkar Medical College,
Kadugondanahalli,
Bangalore-560045,
Karnataka, India.

2. Materials and Methods

An analysis of the topical use of drugs in mild to moderate acne treatment was done to study the cost of therapy in the department of dermatology, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore. The institutional ethics committee approval was obtained before starting the study.

Acne vulgaris was graded using a simple system taking in to account primarily the predominant lesions present, thus classifying acne into four grades.[2]

Grade 1: Comedones, occasional papules (few lesions), on the face without scarring.

Grade 2: Papules, comedones, few pustules lesions on face (lesions 10 – 25) and trunk with mild scarring.

Grade 3: Predominant pustules, nodules, abscesses with moderate scarring.

Grade 4: Mainly Nodulocystic, abscesses, wide spread scarring.

Global Alliance of Acne Treatment Algorithm[3]

Table 1: Global alliance of acne treatment algorithm for mild and moderate acne

Acne Severity	Mild Comedonal	Moderate Mixed papular and pustular
1st Choice	Topical Retinoid	Topical retinoid + Topical antimicrobial
Alternative 1	Alternrnative topical retinoid/Azelaic acid, Salicylic acid	Alternative topical retinoid, antimicrobial agent + Alternative topical retinoid/ azelaic acid
Alternative for female (1,4)	See 1 st choice	See 1 st choice
Maintainance therapy	Topical retinoids	Topical retinoids

3. Results

The most economical drug for topical treatment of acne is Erythromycin , followed by Salicylic acid. . Among topical retinoids, tretinoin was the most economical option. Among combination therapy, tretinoin 0.025% + clindamycin 1% gel is preferred as it is more economical . The most commonly prescribed topical drugs for acne, singly and in combination along with their cost are shown in tables 1 and 2 respectively. The latter is also graphically depicted in fig.1.

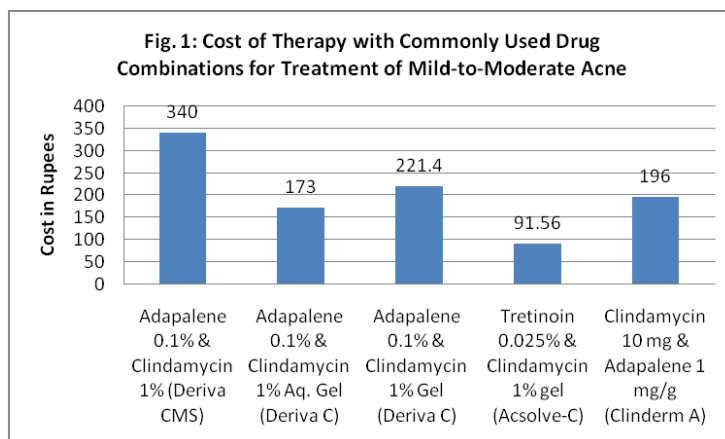


Table 2. Selected topical medication for the treatment of acne

Medication	Formulation	Brand Name	Cost in Rupees	Dosage & duration	Side effects
RETINOIDS					
1.Adapalene (Generic name)	Gel 0.1%	Adaferin Gel 0.1% 15gms (Galderma)	340	Once daily application for 6weeks at night time.	Dryness, burning, scaling, irritation.
	Cream 0.1%	Deriva-MS gel 0.1% (Glenmark Gracewell)	272		
2.Tazarotene (Generic name)	Gel 0.05%	Tazret 0.1% cream 15g (Gracewell, Glenmark)	281	Once daily application for 6weeks at night time.	Dryness, burning, scaling, irritation.
	Gel 0.1%	Tazret gel 0.05% 15g(Glenmark)	216.2		
	Cream 0.05%				
3.Tretinoin (Retin -A) (Generic name)	Cream 0.025%	Retino - A [J and J](Ethnor)] Cream 0.025% 20g	171.2	Once daily application for 6weeks at night time.	Dryness, burning, scaling, irritation.
	Cream 0.05%	Cream 0.05% 20g	192.5		
ANTIBIOTICS					
Clindamycin (Generic name)	Gel 1%	Clindac-A Solution 1% 25ml (Galderma)	203.1	Twice daily for 6 weeks	Local irritation
	Lotion 1%	Gel 1 % 10g	121.5		
Erythromycin (Generic name)	Gel 4%	Eryacne gel 4% 20g Erytop	75	Twice daily for 6 weeks	Local irritation
	Lotion 3%	Lotion 3% 25 ml	61.69		
	Cream 3%	Cream 3% 20g	53.7		
OTHERS					
Benzoyl peroxide	Gel 2.5%	Benzac-1.AC(galderma) Gel 2.5% 20g	134.1	Twice daily for 6 weeks	Erythema,peeling, Contact dermatitis, dryness
	5%	Gel 5% 20g	148.6		
Azelaic acid	Cream 10%,20%	Azelaic acid 10% Azelaic acid 20%	232 293	Twice daily for 6 weeks	Erythema,peeling, Contactdermatitis, dryness
Salicylic acid	Ointment 2-6%,12%	Salilac-SF 6% 30 g ointment(psycorem)	110	Twice daily for 6 weeks	Erythema,peeling, Contact dermatitis, Dryness
		Salilac-SF 12% 20g(psycorem)	98		

Table 3.: Combinations of medication for topical treatment of acne

Medication	Brand name	Cost in Rupees	Dosage and Duration	Advantages
Adapalene 0.1%+ Clindamycin 1%	Deriva-CMS (Glenmark Gracewell) gel 15g	340	Once/Twice daily application for 6weeks	Better patient compliance
Adapalene 0.1%+Clindamycin 1%	Deriva-C (Glenmark Gracewell) Aq.gel 15g Gel 15g	173 221.4	Once/Twice daily application for 6weeks	Better patient compliance
Tretinoin 0.025% + Clindamycin 1% gel	Acsolve-C 10g	91.56	Once/Twice daily application for 6weeks	Better patient compliance
Clindamycin 10mg + Adapalene 1mg/g gel	Clinderm-A 15g	196	Once/Twice daily application for 6weeks	Better patient compliance

4. Discussion

In our study, we found that erythromycin was the most economical option for the management of acne, followed by salicylic acid. Topical Antibiotics like erythromycin have a limited use as monotherapy even though it is most economical, clindamycin is frequently combined with other agents to improve efficacy. Among topical retinoids, tretinoin was the most economical option. However, cost alone cannot be a sole deciding factor for therapy. The cost-effectiveness of the therapy should be studied, and a decision should be made on the choice of therapy. Additionally, the choice of drug also depends on the severity and type of acne.

Acne is a resistant condition, which is often not amenable to treatment with a single drug. Additionally, there can be increased side effects because of a higher dose of the same drug being used. Therefore, combination therapy is warranted in most cases. The different combination of drugs include Clindamycin 1% + benzoyl peroxide 5%, Erythromycin 3% + 5% benzoyl peroxide, Adapalene 0.1% + 2.5% benzoyl peroxide, Adapalene 0.1% + Clindamycin 1%.

The preferred drug combination in our set up is Tretinoin 0.025% + Clindamycin 1%. This is because this combination is not only the most economical but also has been shown in several studies to be efficacious in the management of mild-to-moderate acne.[4, 5] Topical retinoids are the corner stone of acne therapy because they can be used as monotherapy for mild comedonal acne and as maintenance therapy. Adapalene 0.1% + Clindamycin 1% combination, the efficacy is good but because of cost factor has limited use in our set up.[6, 7]

5. Conclusion

Acne vulgaris has a multifactorial etiology and being a chronic disease, often requires the use of medications for extended periods of time. Additionally, combination therapy is better compared to single drug therapy. Considering these factors, the cost of therapy is an important criterion for patient compliance.

Erythromycin is the most economical single drug available topically for the management of acne. However, its beneficial effects are questionable and hence, are not preferred.

Although many combinations have shown beneficial effects, in our hospital we prefer tretinoin and clindamycin since it is the most economical option, and also studies have shown that it is effective in the management of mild-to-moderate acne.

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