

## Review Article

# Cosmetics and skincare routine in acne prone skin

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### ABSTRACT

The growing awareness and indulgence of the general population into cosmetics make it essential for us, as dermatologists, to know when to avoid or consume them in the management of acne. This review, therefore, deals into specifics of cosmetics, acne cosmetica and recommendations on use of cosmetics in an acne prone skin.

**Keywords:** Cosmetics, Cosmeceuticals, Skincare, Acne prone skin

## INTRODUCTION

### *Cosmetics, cosmeceuticals and dermocosmetics*

From an estimated growth rate of 17% in 2015 to an expected annual rise to 25% by 2025, the Indian dermo-cosmetic market (IDCM) stood at 6.5 billion USD from a global market of 274 billion USD in 2018, making it one of the largest growing therapies in the whole Indian Pharmaceutical Market.<sup>1,2</sup>

What do we understand of these terminologies, often cited interchangeably and are they any different from the traditionally prescribed anti-acne drugs and that from one another? A 'drug' may be defined as an article proposed for the management of a disease by altering the body's structure or its function, after undergoing thorough premarket testing for its safety and efficacy. Whereas, a 'cosmetic' item is meant for external use only with an intent of body enhancement, without affecting the anatomy or body's internal functioning. It promises no therapeutic role with an assumed safety in accordance with the Food Packaging and Labelling Act.<sup>3</sup>

'Cosmeceuticals', or more recently, 'dermocosmetics' may be considered as intermediary terms between cosmetics and pharmaceuticals, for alluring aesthetic

products meeting the required physical, chemical and the microbiological standards and an over-the-counter availability.<sup>3</sup> It is to be noted that the Food and Drug Administration (FDA) does not define nor regulate the use of the respective nomenclature.<sup>4</sup>

### ACNE COSMETICA

With the ever-budding skin and hair care industry, the association between acne and cosmetics from first being recognized in 1972 by Albert M. Kligman has also witnessed multiple conceptual revisions.<sup>5</sup> Acne, an inflammatory condition of the pilosebaceous glands is multifactorial in nature (Table 1 and Figure 2), of which cosmetics may also play a role in either inducing it or exacerbating the existing state.<sup>6,7</sup> Then how do we differentiate acne cosmetica from acne vulgaris or other variants of acne?

It has been studied on rabbit following human models that certain substances contained in cosmetics or skin care products may either be comedogenic or acnegenic in susceptible individuals.<sup>8</sup> Comedogenicity is a consequence of follicular plugging, presenting abruptly as a monomorphic eruption of discrete, and minute, predominantly closed comedones occupying mostly lower half of the face ('chin acne') in middle aged females after

several (2 to 4) weeks of concerned product application.<sup>5</sup> Table 2 gives a list of materials with possible comedogenic potential.<sup>8</sup> However, it has been emphasized on more than one occasion that the effect on acne of individual cosmetic ingredient used in various dilutions and the finished product may differ.<sup>9</sup>

Another presentation may be of a patient recalling use of a new product, manifesting with perifollicular papules and pustules 48 hours later. This may be related to the acnegenicity of a formulation causing irritant contact dermatitis. An emulsifier has been the most common irritant element found.<sup>8</sup>

Acne in any of its forms could carry a variable amount of psychological expense on its bearer with face in an adolescent being regularly involved, for it must carry no surprise that the most severely affected cases with acne cosmetica are the ones caught up in a vicious cycle of using more and more concealing cosmetics in an attempt to camouflage more and more of those bumps and blemishes.<sup>5,10</sup>

### COSMETICS FOR ACNE PRONE SKIN

There has been tremendous advancement in the knowledge of skin's normal physiology, product development and testing over the last few years evolving the relationship between cosmetics and skin to the introduction of 'dermocosmetics', referring to the use of cosmetic products alone or in conjunction with pharmacological treatment for acne.<sup>7</sup> These articles are designed to suit the person's age, Fitzpatrick skin type, ethnicity, and lifestyle habits, protecting the skin from the adverse effects of

topical and systemic anti-acne agents; augmenting their effect in the management and prevention of new lesions and enhancing patients' quality of life.<sup>7,11</sup> They have shown to improve patient's adherence to the treatment and may soon be considered as safer alternatives to drugs in pregnancy and lactation.<sup>7</sup>

Retinol, retinaldehyde, nicotinamide, glycolic acid (alpha hydroxy acid), salicylic acid (beta hydroxy acid) and zinc salts are some of the most commonly incorporated elements in the anti-acne cosmetic formulations (Tables 1 and 3).<sup>3,4,7</sup> Different types of cosmetics i.e. cleansers, astringents, moisturizers, corneolytics and chemical peeling agents are to be introduced in a careful, sequential manner over weeks of ongoing prescribed treatment as shown in Table 3.<sup>4</sup> Other naturally derived substances like oat plantlet extract, feverfew, aloe vera, chamomile, curcumin, soy, coffee berry, mushroom extracts, green tea, pine bark extract, vitamin E, through their anti-inflammatory/anti-oxidant/moisturising properties may prove to be effective against acne on further clinical trials.<sup>7</sup>

As we are aware, acne with its post residual marks and scars can take from months to years to retard. It is practically impossible to expect the patients to refrain from an occasional use of covering methods, corrective make-up being one of them, in the meanwhile. Cosmetic camouflage in many disfiguring dermatoses has shown to benefit patients by reducing their anxiety levels and in turn, improving the dermatology quality life index (DQLI).<sup>12</sup> Table 4 enlists certain characteristics for various product categories that should be kept in mind for individuals with acne or oily skin.<sup>13-15</sup>

**Table 1: Pathophysiology of acne.<sup>6,7</sup>**

Pathophysiology of acne	Different cosmeceuticals to combat each of the following
Increased sebum production	Antioxidants (like fullerene, epigallocatechin-3-gallate, sodium L-ascorbyl-2-phosphate), nicotinamide
Hyperandrogenism	-
Abnormal follicular keratinization	Alpha, beta, lipo-hydroxy acids, retinol-based products, linolenic acid
Role of <i>Propionibacterium acnes</i> , <i>Staphylococcus aureus</i> , <i>Staphylococcus epidermidis</i> and role of biofilms	Lauric acid, retinaldehyde, zinc, topical application of lactobacillus plantarum (a probiotic bacteria producing antimicrobial peptides)
Inflammation	Nicotinamide, zinc, alpha-linolenic, eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids, tree tea oil

**Table 2: List of substances with possible comedogenicity.<sup>8</sup>**

S. no.	Substances with possible comedogenicity
1	Butyl stearate
2	Cocoa butter
3	Corn oil, peanut oil, safflower oil, sesame oil, olive oil
4	D&C red dyes
5	Decyl oleate, methyl oleate
6	Isopropyl isostearate, isopropyl myristate, isostearyl neopentenate, isopropyl palmitate, isocetyl stearate
7	Lanolin, acetylated linseed oil, laureth-4 mineral oil
8	Myristyl ether propionate, myristyl lactate, myristyl myristate

Continued.

S. no.	Substances with possible comedogenicity
9	Oleic acid, oleyl alcohol
10	Octyl palmitate, octyl stearate
11	Paraffin, petrolatum
12	Propylene glycol stearate
13	Sodium lauryl sulfate
14	Stearic acid stearyl alcohol

**Table 3: Cosmetics adjunctive to anti acne drugs.<sup>4</sup>**

Time period since treatment initiation (in weeks)	Drug (in varying concentration)	Cosmetic/cosmetic procedures	Advantage to the treatment regime of a cosmetic add-on
1-4	Topical benzoyl peroxide; topical retinoids ± topical antibiotics	Lipid free cleansers or syndet bars (pH 5-7) with non-comedogenic moisturising gels; decorative make up should be water based.	To enhance the tolerance of newly introduced anti-acne drugs leading to increased epidermal turnover and transepidermal water loss; to alleviate complaints of dryness, scaling, irritation, tightness.
4-8	Topical benzoyl peroxide; topical retinoids ± topical antibiotics	Mild corneolytic cleansers like ones containing alpha hydroxy acid humectants can be introduced. Frequency of moisturisers may be changed to an SOS basis.	To increase the penetration of topically applied drugs and augment their effect to normalise follicular hyperkeratinization.
8-12	Topical retinoids; topical benzoyl peroxide ± topical antibiotics	Use of glycolic/salicylic acid (alpha/beta hydroxy acid) containing cleansers/ perform superficial chemical peels.	To address the comedones and superficial post inflammatory pigmentary changes.
12-16	Topical retinoids ± topical benzoyl peroxide	Medium strength chemical peels may be performed.	-
16-20	Topical retinoids	10-20% glycolic acid leave on products could be added.	-
20-24	None (SOS)	Use of glycolic/salicylic acid (alpha/beta hydroxy acid) containing cleansers ± astringents ± exfoliates. Mild corneocytic solution for the morning and retinol-based products may be given for the night. Chemical peels may be performed.	-

**Table 4: What to choose for an acne prone skin?<sup>13-15</sup>**

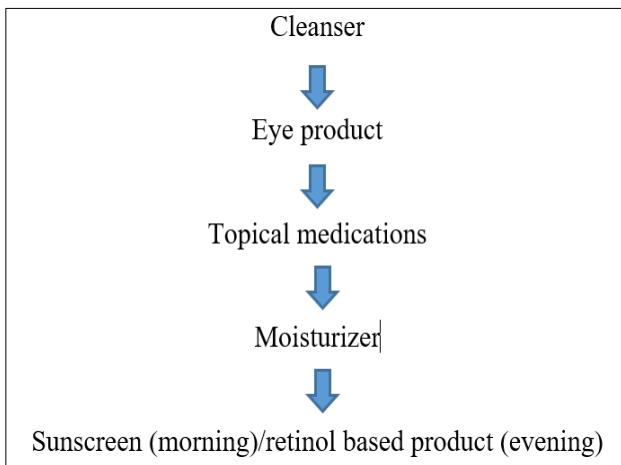
Products	Properties
<b>Decorative cosmetics inclusive of for use on skin, eyes, cheeks: foundation, concealer, eye shadow, blush</b>	Oil free (containing cyclometissue or dimethicone instead); alcohol free; non greasy (matte), non comedogenic/acnegenic, hypoallergic, non-irritating; cream based foundations to be deferred; mineral based, those containing zinc oxide/titanium dioxide/silica are favored; and preferably fragrance and photosensitizer free
<b>Moisturizers</b>	Oil free; non comedogenic; light weight; with hyaluronic acid/glycerin
<b>Sunscreens</b>	Water based gels/ oil free lotions; physical sunscreens with zinc oxide/titanium dioxide/ecamsule/melanin to be preferred over chemical ones consisting of benzophenones/cinnamates/octocrylene; fragrance free; and preservatives like quaternium 15 to be avoided
<b>Masks</b>	Products with clay/kaolin/talc may temporarily be used
<b>After shaving products</b>	Shaving cream/gel to be chosen over foam; moisturizing lotion/prescribed topical antibiotic over alcohol or cologne-based aftershave lotion

Continued.

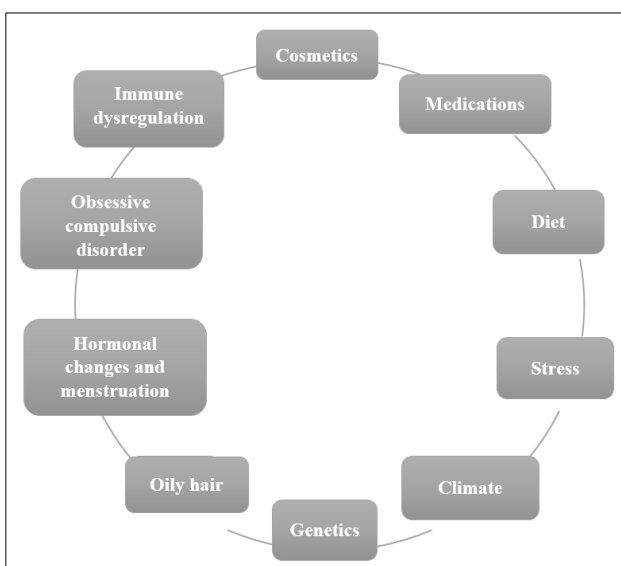
Products	Properties
Hair oils	To be avoided
Make up remover	Cleansing milk/rose water is better than alcohol-based astringents/toners
Exfoliators	Mild; containing glycolic acid/salicylic acid/resorcinol

**Table 5: Make up and skin care tips in the midst of breakouts.<sup>11,15,16</sup>**

S. no.	Make up and skin care tips in the midst of breakouts
1	Choosing the right product is of paramount importance (Table 4)
2	Avoid over washing; cleaning the face twice a day usually is sufficient. Harsh scrubs not to be used
3	Use only small quantity of concealing products in proportion to your face suiting your skin tone. Avoid excessive layering up
4	Make up should be removed with an appropriate make up remover followed by a facial cleanser. Do not wipe/rub too much. Do not sleep with any kind of make-up on
5	Moisturize if necessary
6	Use makeup applicators and wash them weekly with soap and water. Avoid sharing them with others. Direct application of make up with fingers is not advised



**Figure 1: Sequence of skincare routine for most skin types.<sup>17</sup>**



**Figure 2: Various factors associated with acne.<sup>8</sup>**

**CONCLUSION**

There is considerable scientific data to state that while inappropriate products may result in acne cosmetic or aggravation of existing acne, choosing the right cosmeceuticals for your skin, and following the dermatologist’s instructions on the use of cosmetics and skin care can lead to longer remission intervals.

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