



THE ROLE OF ISOTRETINOIN IN ACNE

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ABSTRACT:

Isotretinoin is a powerful treatment for severe acne, but it comes with risks. This review covers how it works, how well it works, and its safety. We also look at its potential use for other skin problems. By understanding all this, dermatologists can make better decisions for their patients with acne.

INTRODUCTION:

Acne is a common dermatological condition affecting individuals worldwide, primarily young adults. It presents with various clinical manifestations, including comedones, papules, pustules, nodules, and cysts, often leading to psychosocial distress and significant impairment of quality of life. Despite the availability of numerous therapeutic options, managing severe, recalcitrant, or scarring acne remains challenging for dermatologists.

Isotretinoin, a synthetic retinoid derived from vitamin A, has revolutionized the treatment landscape for severe and treatment-resistant acne. Since its introduction in the early 1980s, isotretinoin has emerged as the cornerstone of therapy for severe nodulocystic acne and acne that is unresponsive to conventional treatments. Its mechanism of action involves normalization of abnormal keratinization, reduction of sebum production, anti-inflammatory effects, and modulation of the cutaneous microflora, collectively leading to a significant improvement in acne lesions and prevention of scarring.



NEED TO STUDY:

The need of study of role of isotretinoin is essential for know its working mechanism in which we study how isotretinoin works at a cellular level , including its effects on sebaceous glands and keratinization and it's study is also important for know its effecacy , safety , potency and the patient compliance so, these are the important things that makeessential topic to study .

DISCUSSION:

According to <https://doi.org/10.1002/jvc2.154> 32 studies were included, with a total sample size of 5245 patients with mild to very severe acne vulgaris Of these, 15 were randomised controlled trials (RCT), 10 were prospective noncomparative studies, 2 were prospective comparative studies, and 5 were retrospective, noncomparative series. When assessing clinical severity of acne 10 studies focused on mild–moderate acne, 12 on moderate to severe and 5 on severe only. Three studies included a wider range, from mild to severe, whereas one focused solely on resistant acne.

Acc. to national library of medicine

Alison Layton publish review article in 2009 May-Jun

isotretinoin is the only therapy that impacts on all of the major aetiological factors implicated in acne. It achieves this remarkable efficacy by influencing cell-cycle progression, cellular differentiation, cell survival and apoptosis.¹⁻⁷ It results in a significant reduction in sebum production, influences comedogenesis, lowers surface and ductal *P. acnes* and has anti-inflammatory properties. A dose of 0.5–1.0 mg/kg/day dramatically reduces sebum excretion by the order of 90% within 6 weeks. Unlike tretinoin (all-trans retinoic acid), isotretinoin has little or no ability to bind to cellular retinol-binding proteins or retinoic acid nuclear receptors (RARs and RXRs) but may act as a pro-drug that is converted intracellularly to metabolites that are agonists for RAR and RXR nuclear receptors.

According to me the mechanism of action of isotretinoin is:

1. **Normalization of Keratinization:** bring down cohesion between corneocytes, preventing microcomedone formation.
2. **Sebaceous Gland Size Reduction:** reduces sebaceous gland size and activity, reducing sebum production.
3. **Anti-inflammatory Properties:** Suppresses pro-inflammatory cytokines, relieving inflammation in acne lesions.
4. **Antibacterial Effects:** bring down Cutibacterium acnes population, though exact mechanism unclear.
5. **Normalization of Follicular Epithelial Differentiation:** Promotes follicular epithelial cell differentiation, stop comedone formation.
6. **Modulation of Gene Expression:** have an effect on gene expression in cellular processes relevant to acne pathogenesis.



Dosage of isotretinoin:

Acc. To <https://www.wikidoc.org/index.php/Isotretinoin>

Table 1: ABSORICA Dosing by Body Weight (Based on Administration With or Without Food)

Body Weight		Total Daily (mg)		
Kilograms	Pounds	0.5 mg/kg	1 mg/kg	2 mg/kg
40	88	20	40	80
50	110	25	50	100
60	132	30	60	120
70	154	35	70	140
80	176	40	80	160
90	198	45	90	180
100	220	50	100	200

Side effects :

According to american academy of dermatology association

Pregnancy risks: If a person takes isotretinoin while pregnant, this medication can cause:

- Severe birth defects
- Miscarriage
- Stillbirth

Prevent pregnancy risks: To get a prescription for isotretinoin, a patient who can become pregnant must take two pregnancy tests to make sure they're not pregnant. Patients who can get pregnant must also agree that while taking this medication, they will have a monthly pregnancy test and use two forms of birth control.

Dryness: It's common to experience one or more of the following while taking isotretinoin { :most common side effect }

- Dry skin, severely chapped lips
- Nosebleeds
- Dry, irritated eyes
- Dry mouth

ACCORDING TO ME:

For reducing the side effects :

1. Patient can use non comedogenic moisturizer
2. Sunscreen

3. lip guard

4. And a oil free face wash

[patient should use these all product as per the doctor prescription]

CONCLUSION:

Isotretinoin has more and more been used to treat several dermatological conditions, in addition to its primary indication for severe acne . Success stories of potency in these conditions have expanded its potential usage beyond previously known. However, it is important to note that most studies are limited to case reports, case series, or prospective studies. Therefore, it is still necessary to conduct randomized controlled trials to confirm the potency of isotretinoin in treating these conditions. When considering treatment options, carefully evaluating the potential benefits and drawbacks is critical. For instance, it is important to consider the possible side effects of isotretinoin, mainly for women of childbearing age.

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