Early Onset of Efficacy Using a 1% and 2% Topical Minocycline Gel for the Treatment of Rosacea: a Small Open Label Study

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Introduction

Rosacea is a common, chronic, and relapsing skin disorder that presents with a variety of clinical manifestations primarily on the central face[1]. The papulopustular subtype forms acne-like inflammatory papules, pustules, and plaques. Genetic, immune, inflammatory, vascular, and environmental mechanisms may contribute to its development[2,3]. Because no cure has been identified, current treatments are generally used chronically or intermittently and aim to suppress its symptoms[4].

Minocycline is effective as a first-line systemic therapy for rosacea; it is thought that, like other tetracyclines, its anti-inflammatory properties are responsible[5]. However, significant side effects such as gastrointestinal distress and vertigo may make long-term use of oral minocycline intolerable and chronic use may contribute to resistance. Another form of delivery with lower overall dosage and reduced systemic side effects is needed.

The study medication: Topical minocycline gel

Strong Safety Profile
- Low dose: 1% and 2% minocycline
- Minimizes side effects
- Low systemic exposure

Strong Efficacy
- Stabilizes & solubilizes minocycline
- Delivered directly to affected facial skin
- Targeted penetration

Positive Patient Experience
- Rapidly absorbing
- Non-staining
- Non-oily
- Non-fluorescing
- Very high patient satisfaction in clinical trials

The study medication is the first completely solubilized minocycline gel for topical use. Its preliminary safety and efficacy profiles have been demonstrated in extensive preclinical testing. Additionally, it has completed phase 2a and 2b testing for the treatment of acne vulgaris.

Methods

This was a phase 2 open-label feasibility study of 1% and 2% formulations of a novel topical minocycline gel for the treatment of rosacea.

STUDY DESIGN
- Open-label, single-site study
- 20 adults with moderate-to-severe (Grade 3 or 4; IGA*) papulopustular rosacea
- 12 weeks of treatment evaluating 2 arms: 1% (n=10) and 2% (n=9 [10 enrolled, 1 withdrawn]) formulations of topical minocycline gel
- Treatment assignment was non-randomized

EFFICACY ENDPOINTS
- 2-grade reduction in IGA to clear or almost clear (0 or 1) from baseline to 12 weeks
- Change in lesion count from baseline to 12 weeks

SAFETY & TOLERABILITY ENDPOINTS
- Cutaneous tolerability (4-point severity scales, investigator- and subject-reported)
- Hematology & chemistry lab tests
- Treatment emergent AEs

* Investigator Global Assessment (IGA); based on scale of 0 (clear) to 4 (severe)

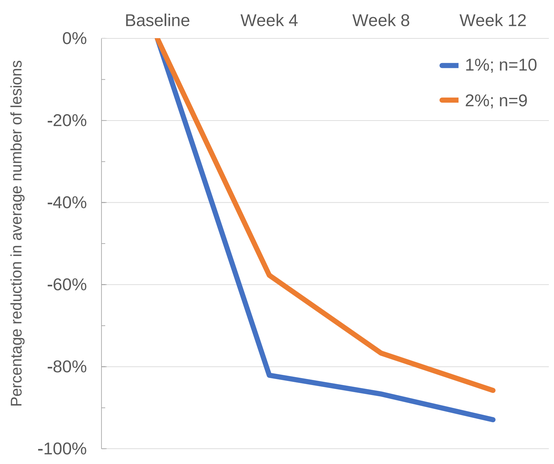
Results: Rapid and Effective

Reduction in Number of Lesions

Mean Numbers of Lesions

	Baseline	Week 4	Week 8	Week 12
1%	24.0	4.3	3.2	1.7
2%	28.1	11.9	6.6	4.0

Percentage Change from Baseline

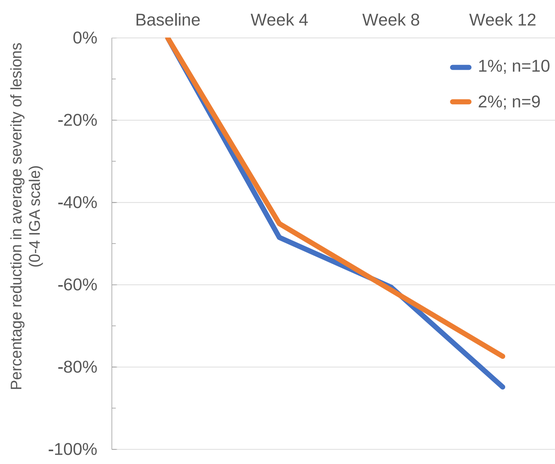


Reduction in Severity of Lesions

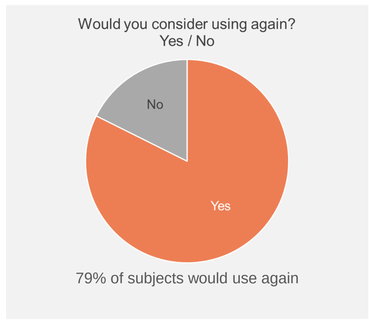
Mean IGA Scores

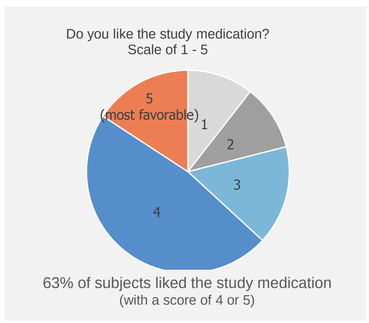
	Baseline	Week 4	Week 8	Week 12
1%	3.3	1.7	1.3	0.5
2%	3.4	1.9	1.3	0.8

Percentage Change from Baseline



Satisfaction: Both 1% and 2% Formulations Show Potential for High Patient Compliance





Cutaneous Tolerability Ratings Are Favorable

Percentage of Subjects with Improvements or No Change in Investigator- and Subject-rated Cutaneous Tolerance Scores from Baseline to Week 12

	1%Topical Minocycline Gel (n=10)	2% Topical Minocycline Gel (n=9)	Combined Treatment Groups (n=19)
Investigator-reported			
Erythema	100.0%	100.0%	100.0%
Scaling/peeling	100.0%	100.0%	100.0%
Edema	100.0%	100.0%	100.0%
Subject-reported			
Burning	80.0%	77.8%	78.9%
Stinging	60.0%	77.8%	68.4%
Tightness	60.0%	77.8%	68.4%
Itching	70.0%	88.9%	78.9%

Good Safety Profile

- Generally safe and well tolerated
- No serious drug-related adverse events
- 3 adverse events were reported, but none were related to the study drug or study assessments
  - Lower molar abscess (n=1; 1% arm)
  - Upper respiratory infection (n=1; 1% arm)
  - Contusion on nose (n=1; 2% arm)
- No clinically significant laboratory test findings were noted

This is the first report of successful treatment of rosacea with a novel topical minocycline gel. The efficacy endpoints of reduction in number and severity of facial lesions were met and showed rapid onset. For both the 1% and 2% formulations, clinically meaningful improvements were reported after just four weeks of treatment.

Additionally, the minocycline gel treatment had a good profile for safety and tolerability. The majority of subjects stated they would use the minocycline gel again.

The study's small size and open-label single-center design must limit conclusions drawn but suggest that larger-scale testing is warranted. Next-phase clinical trials are planned.

In conclusion,

The rapid rate of improvement has the potential to improve treatment compliance and improved patient satisfaction.

An important advantage of the topical minocycline formulation – especially in chronic conditions such as rosacea in which long-term use is possible – may be in reduction of risks associated with systemic exposure to this antibiotic.

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The topical minocycline gel is limited by federal or US law to investigational use only.