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Generic twice daily minocycline vs. branded extended-release minocycline for acne: a retrospective comparison of treatment escalation

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To the Editor

Minocycline, the most frequently prescribed oral antibiotic for acne treatment[1], is available in an extended release (ERM), once-daily branded formulation and a twice-daily generic formulation (GM)[2]. The branded formulation may allow for improved patient adherence due to its dosing. Patient adherence to medication can lead to improved outcomes in resolution of acne.[3,4] However, head-to-head studies comparing ERM to GM have not been published. Our study objective is two-fold: to compare real world treatment failure, defined as progression to isotretinoin[5], among the ERM and GM formulations, and to compare administrative burden (patient phone calls, pharmacy messages) between these two formulations.

The Ohio State University Medical Center information warehouse was queried for patients who saw OSU dermatology, were coded acne vulgaris (706.1) on first encounter, were not previously treated with antibiotics for acne, and given a >30day minocycline prescription between May 2011–September 2015. Patients were categorized using initial prescription: ERM or GM.

216 patients met initial criteria. The ERM and GM groups were generally well-matched at baseline, with similar frequency of patients prescribed concomitant topical therapies and oral contraceptives and spironolactone in female patients (Table 1). Difference in acne types between the groups was not reliably collected. There was a notable difference in insurance type; 100% of ERM patients were insured on managed care vs. 84.3% of patients prescribed GM, with the rest insured through Medicaid or other government insurance. Median length between initial prescription date and follow-up was shorter for ERM vs. GM patients (115

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vs. 178 days) (Table 1). A higher percentage of patients prescribed GM continued their originally prescribed minocycline (88.9%) vs. ERM patients (50%). 45.5% of ERM patients were switched to GM and 4.5% of ERM patients were switched from initial prescription to another oral antibiotic (Table 2). Based on the intention-to-treat analysis, 29.6% of ERM patients were prescribed isotretinoin and 9.3% of GM patients were prescribed isotretinoin ($p = 0.0019$). The mean number of administrative encounters for patients prescribed ERM vs GM was consistently higher at 3 months (1.00 vs 0.35), 6 months (2.04 vs. 0.61), and 12 months (2.95 vs. 1.06) despite no significant difference in the 6-month period prior to prescription start date.

Limitations of this study are discrepancy in sample sizes between patients prescribed ERM vs. GM and high drop-out rate in ERM. Since ERM and GM patients differed by insurance type, it is unclear if these variables potentially confound the affordability and thus frequency of post-office visit care or ease of treatment escalation. The ERM prescriptions were prescribed primarily by 2–3 dermatologists; however these dermatologists did not appear to prescribe isotretinoin significantly more often.

While ERM may be more convenient for patients, it did not appear to offer a significant clinical advantage over GM, at least as measured by rates of treatment escalation. ERM also showed potential for increased office administrative burden. Prospective studies should be conducted to confirm whether patient convenience, adherence, and most importantly acne outcomes are truly improved using ERM vs GM.

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List of Abbreviations

GM generic minocycline

ERM extended release minocycline

Table 1

Population characteristics for patients prescribed ER and generic minocycline.

Demographic	Generic Minocycline (n=172)	Extended Release Minocycline (n=44)	p value (α=.05)
Mean age at prescription (years)	18.227	18.614	0.4679
Sex	Female: 43.6%	Female: 56.8%	0.1296
	Male: 56.4%	Male: 53.7%	
Height (m)	1.715 (n =69)	1.709(n =12)	0.8649
Weight (kg)	67.616(n =77)	67.389(n =15)	0.9659
Race	White: 87.79%	White: 90.91%	0.7612
	Black: 4.65%	Black: 4.55%	
	Other: 7.56%	Other: 4.55%	
% Prescribed Retinoid	62.21%	65.91%	0.7279
% Prescribed Benzoyl Peroxide	54.65%	65.91%	0.2323
% Prescribed topical non benzoyl peroxide antibiotic	7.56%	9.09%	0.7551
% Female patients prescribed OCPs or spironolactone	17.33% (n=75)	20.00% (n=25)	.7753
Insurance type	Managed Care: 84.30%	Managed Care:100.00%	0.0018*
	Other: 15.70%	Other: 0.00%	
Median days to follow up after prescription start	178	115	.0067*

Table 2

Select outcomes for patients prescribed ER and generic minocycline

Outcome	Generic Minocycline (n=172)	Extended Release Minocycline (n=44)	p value (α=.05)
Prescription Course	88.89% (Continue GM)	50.00% (Continue ERM)	0.001*
	3.51% (Switch to ERM)	45.45% (Switch to GM)	
	7.60% (Switch to other antibiotic)	4.55% (Switch to other antibiotic)	
Median Prescription Length	239.5 (n=172)	153.25 (n=36)	0.0563