Evaluation of Ocular Itch Relief With Alcaftadine 0.25% Versus Olopatadine 0.2% in Allergic Conjunctivitis

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Introduction

- Allergic conjunctivitis is one of the most common eye disorders with prevalence estimates of 20% to 40% worldwide[1]
- Symptoms result from immunoglobulin E–activated mast cell degranulation and histamine release in response to allergens such as pollens and animal dander[2]
- Until recently, most available ocular treatment required twice-daily dosing for the prevention of ocular itching, the hallmark symptom of allergic conjunctivitis[3]
- Dual-action antihistamines olopatadine 0.2% (Pataday®) and alcaftadine 0.25% (Lastacaft®) are approved for once-daily use in the United States based on clinical trials,[4,5] which demonstrated efficacy 16 hours post instillation with the conjunctival allergen challenge (CAC) model[6]

[1] Rosario N, Bielory L. *Curr Opin Allergy Clin Immunol* 2011;11:471–6. [2] Ono SJ, Abelson MB. *J Allergy Clin Immunol* 2005;115:118–22. [3] Collum L, Kilmartin DJ. Acute conjunctivitis. In: Abelson MB, ed. *Allergic Diseases of the Eye*. Philadelphia PA: WB Saunders; 2000. [4] Pataday® (olopatadine hydrochloride ophthalmic solution) 0.2% [package insert]. Fort Worth, TX: Alcon Laboratories Inc; 2010. [5] Lastacaft® (alcaftadine ophthalmic solution) 0.25% [package insert]. Irvine, CA: Allergan, Inc.; 2011. [6] Abelson MB, Loeffler O. *Curr Allergy Asthma Rep* 2003;3:363–8.

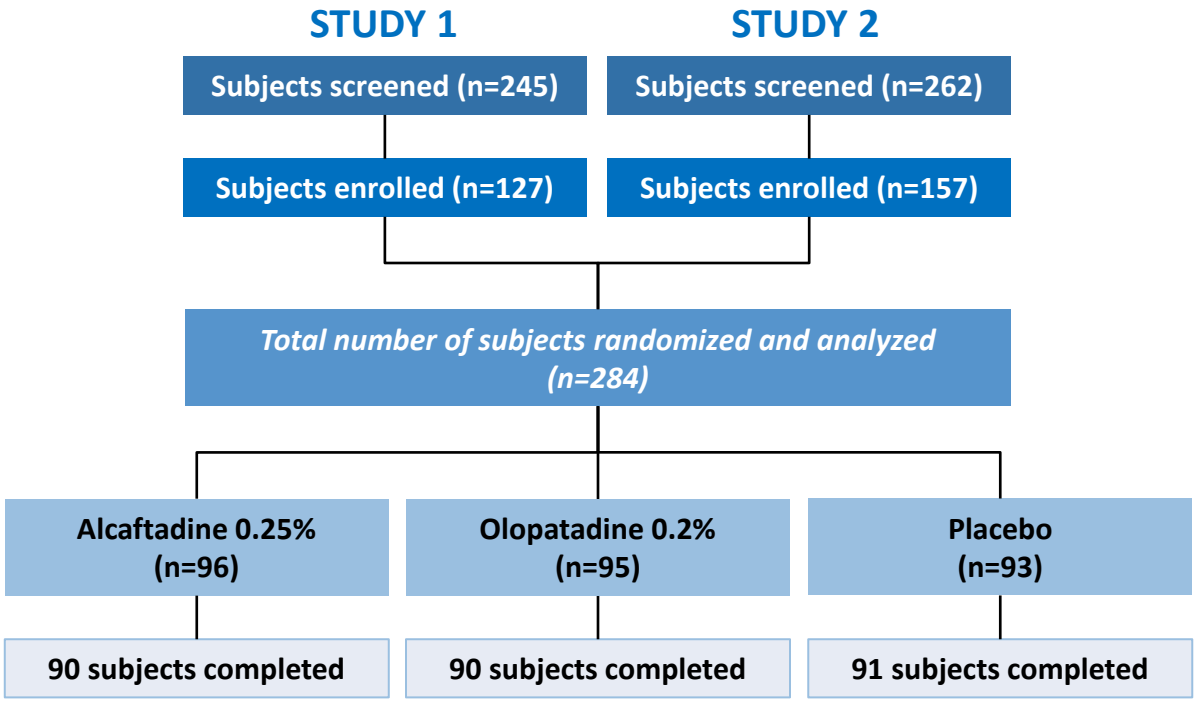
PURPOSE

The purpose of this analysis was to evaluate the safety and efficacy of alcaftadine 0.25%, olopatadine 0.2%, and placebo for the prevention of ocular itching associated with allergic conjunctivitis using the CAC model, in a pooled analysis of 2 randomized clinical trials with similar design

Methods

- Two multicenter, double-masked, randomized, active- and placebo-controlled clinical trials (NCT01470118 and NCT01732757); conducted between October 2011 and December 2012
- Subject selection for enrollment was identical for both studies:
  - Positive skin test of at least 1 antigen in previous 24 months
  - History of ocular itching associated with allergic conjunctivitis but not currently symptomatic
- One drop of alcaftadine 0.25% ophthalmic solution, olopatadine 0.2% ophthalmic solution, or placebo (Tears Naturale II artificial tears) was instilled bilaterally, once daily
- The primary efficacy measure was ocular itching evaluated by the subject at 3 minutes after allergen challenge and 16 hours after treatment instillation
  - Secondary measures included ocular itching at 5 and 7 minutes post challenge
- Safety evaluations included adverse event assessments
- Pooled analysis was conducted utilizing nonparametric Wilcoxon rank sum tests at each time point and analysis of covariance models accounting for repeated time measurements

Subject Disposition



Subject Demographics

	Alcaftadine 0.25% (n=96)	Olopatadine 0.2% (n=95)	Placebo (n=93)	Overall (n=284)
Age, years[a]				
Mean (SD)	38.7 (13.1)	37.9 (14.9)	36.7 (12.6)	37.8 (13.6)
Min–max	12–70	12–74	14–68	12–74
Gender, n (%)[b]				
Male	33 (34.4)	33 (34.7)	39 (41.9)	105 (37.0)
Female	63 (65.6)	62 (65.3)	54 (58.1)	179 (63.0)
Race, n (%)[c]				
White	56 (58.3)	53 (55.8)	53 (57.0)	162 (57.0)
Asian	19 (19.8)	20 (21.1)	20 (21.5)	59 (20.8)
Black/African American	12 (12.5)	15 (15.8)	16 (17.2)	43 (15.1)
Other	9 (9.4)	7 (7.3)	4 (4.3)	20 (7.1)

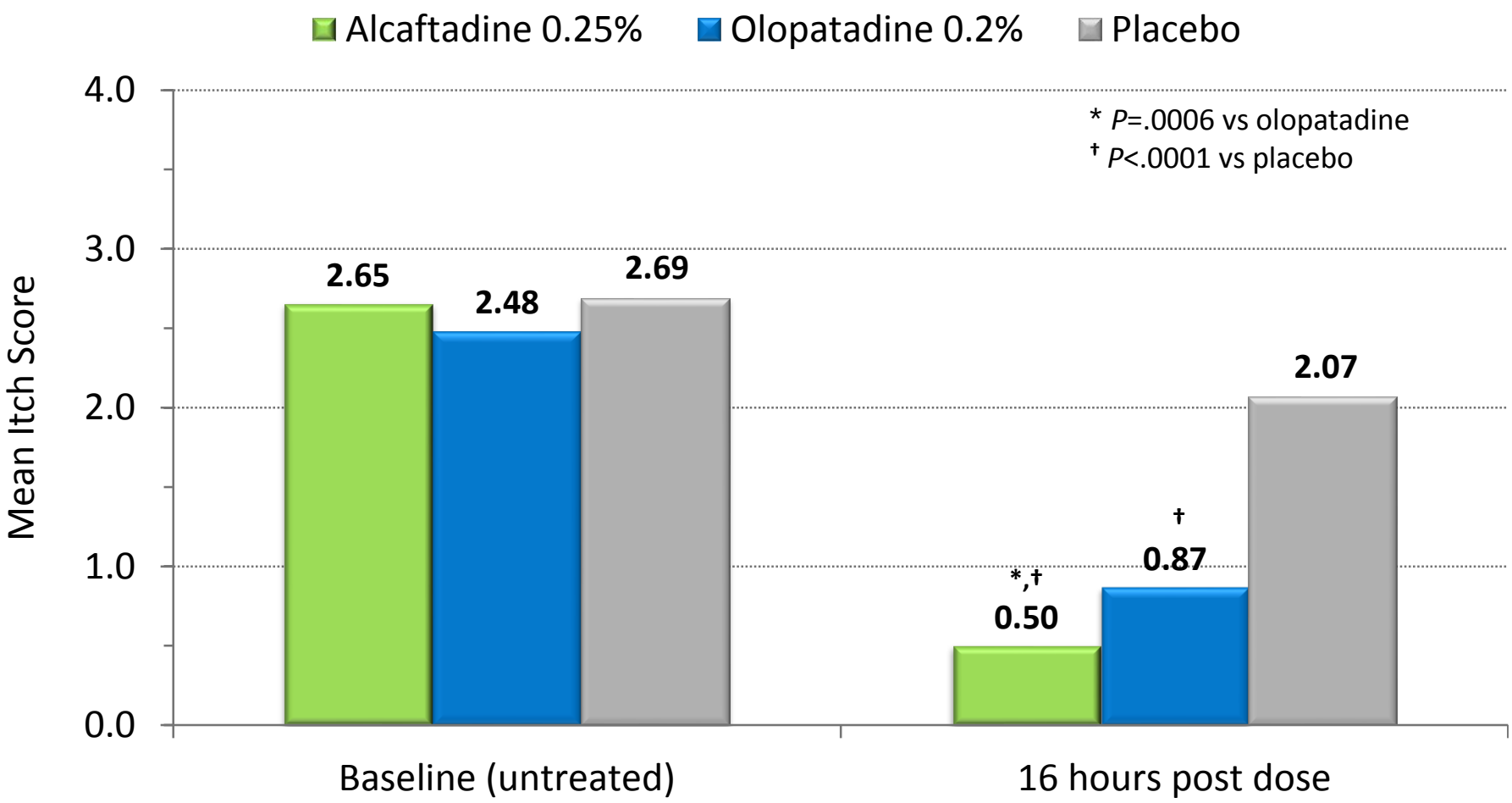
SD, standard deviation

[a] P=.601 calculated using analysis of variance

[b] P=.488, [c] P=.912 calculated using Fisher exact test

Comparison of Mean Itch Scores

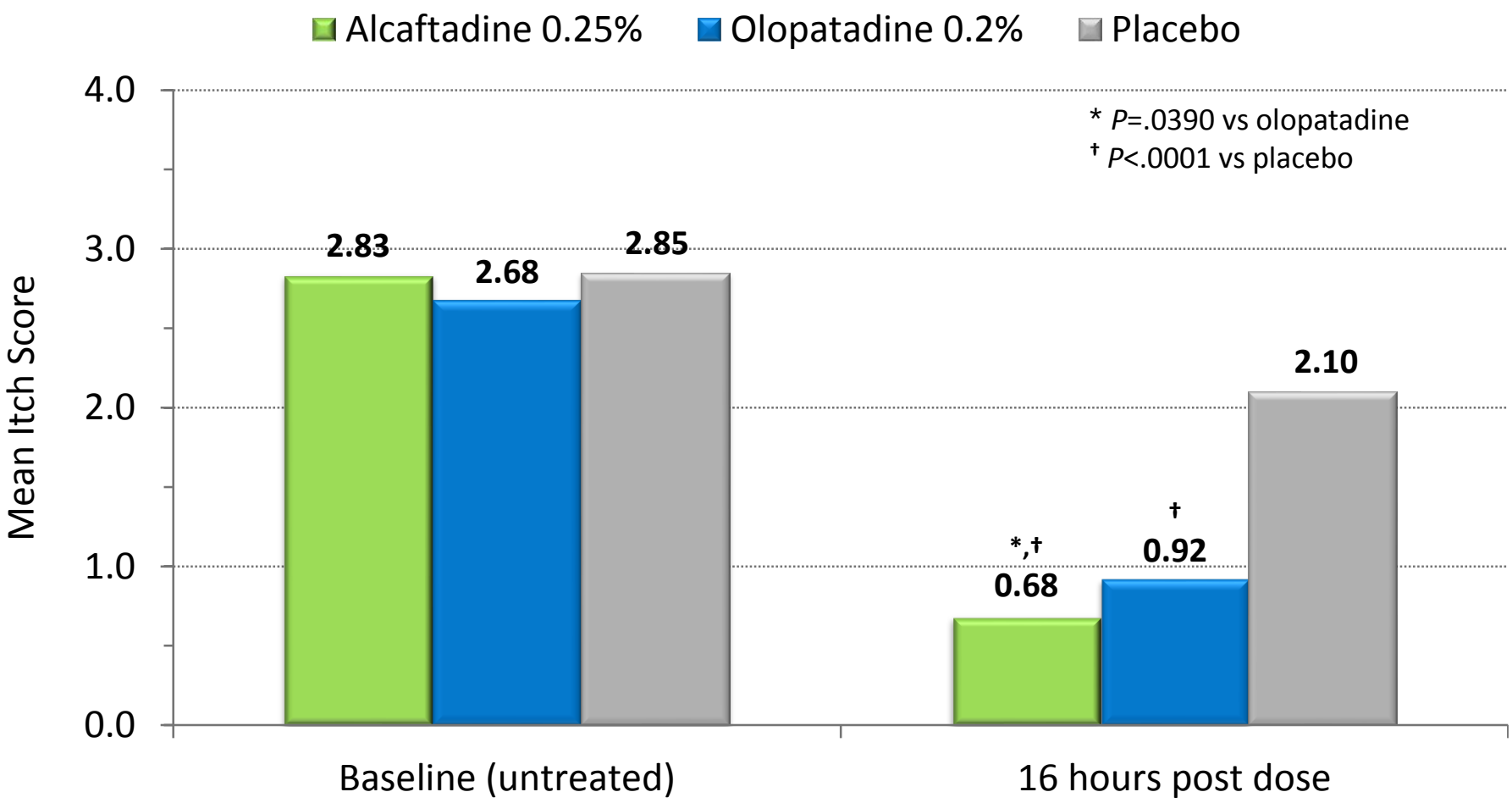
16 Hours Post Treatment Instillation and 3 Minutes Post CAC (Primary Endpoint)



P values calculated using the 2-sample *t* test

Comparison of Overall Mean Itch Scores

16 Hours Post Treatment Instillation, Over All Time Points Post CAC (3, 5, and 7 minutes)

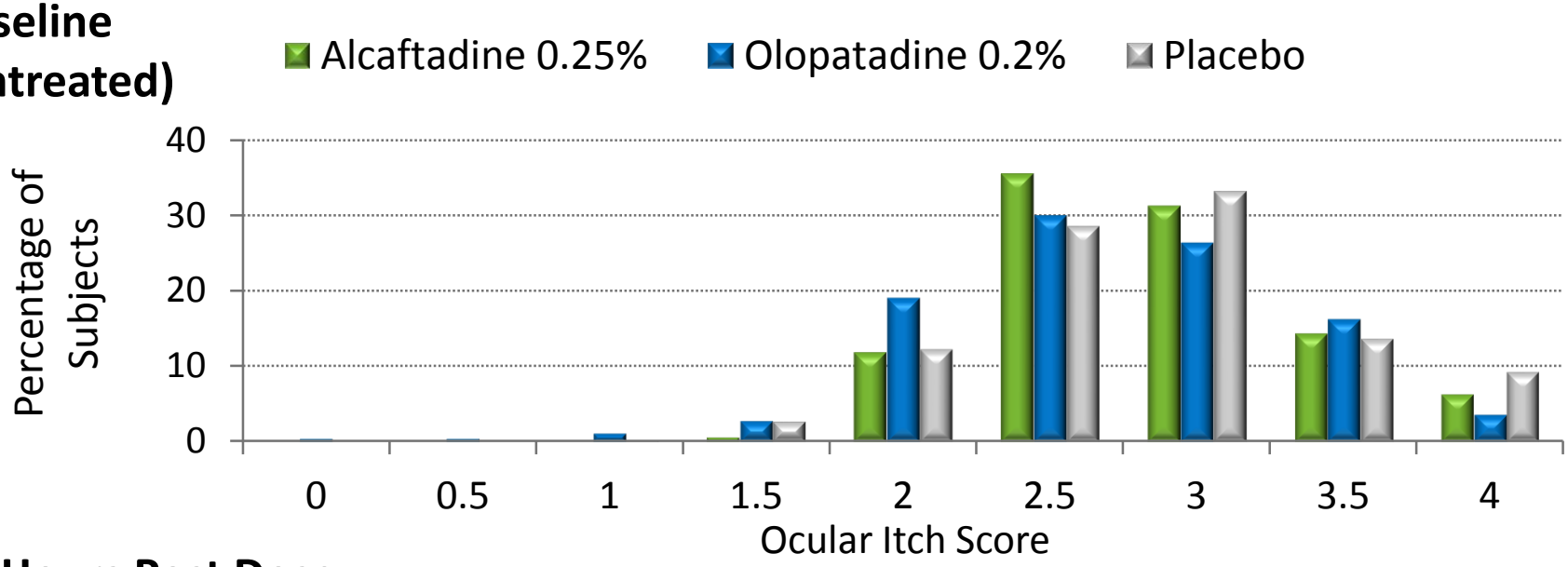


P values calculated using the repeated measures analysis of covariance model accounting for treatment and time points

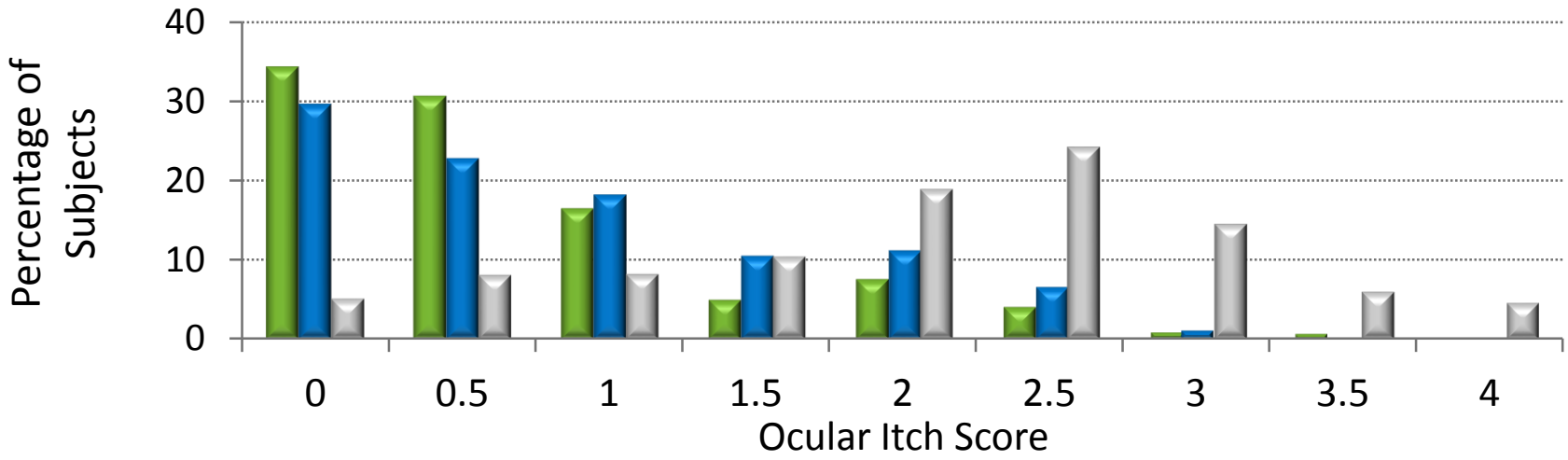
Distribution of Raw Subject-Reported Itch Scores (%)

16 Hours Post Treatment Instillation, All Time Points Post CAC (3, 5, and 7 minutes)

Baseline (untreated)

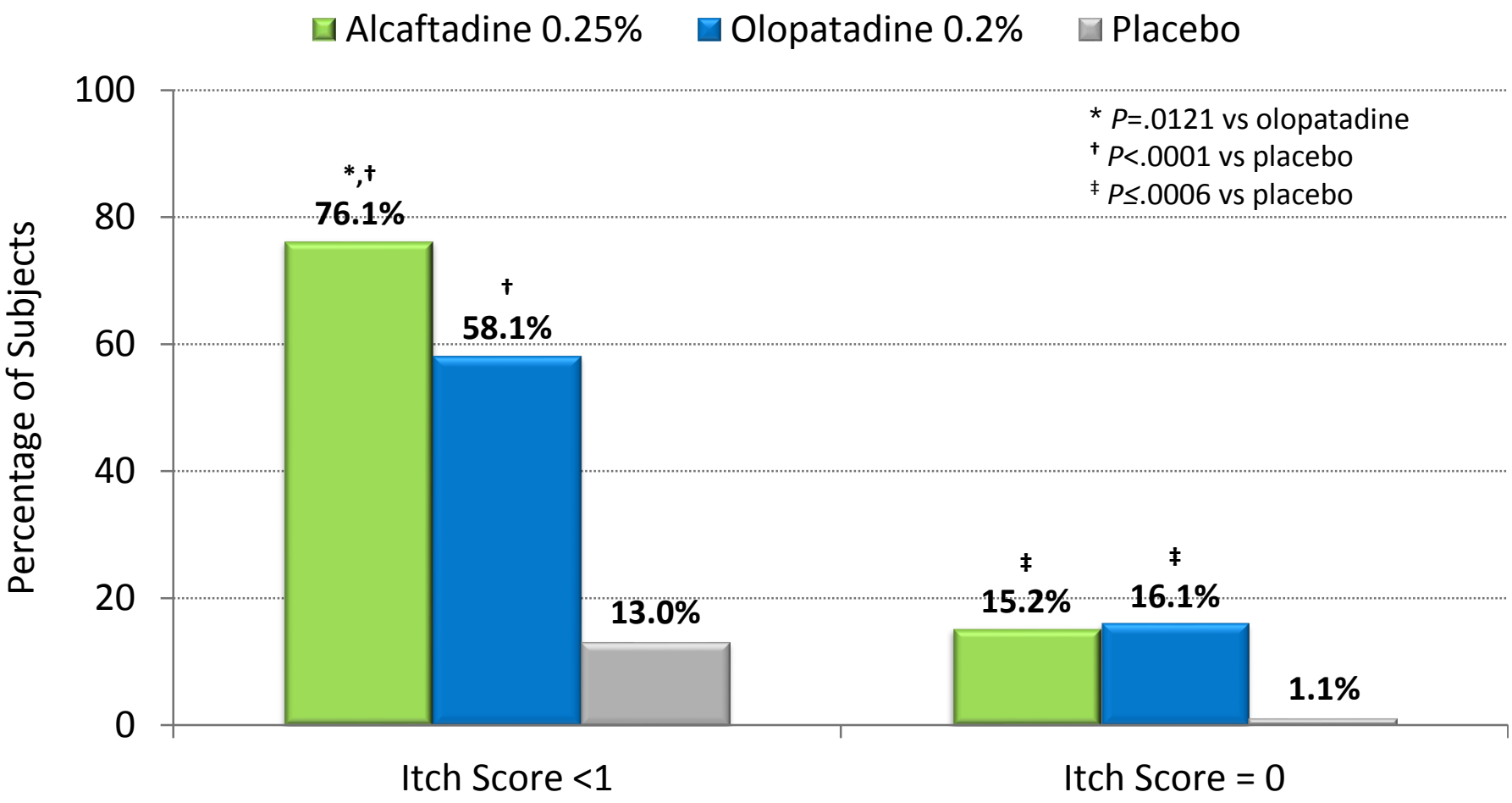


16 Hours Post Dose



Proportion of Subjects With Ocular Itch Scores <1 and = 0

16 Hours Post Treatment Instillation, At All Time Points Post CAC[a]



[a] Subjects had to meet the itch score criteria (<1 or 0) at 3 minutes, and 5 minutes, and 7 minutes post CAC

P values calculated using the Fisher exact test

Safety

- Among 283 subjects in the safety population, 11 subjects experienced a total of 16 adverse events
- Four subjects treated with alcaftadine 0.25%, 5 subjects treated with olopatadine 0.2%, and 2 subjects receiving placebo reported at least 1 adverse event
- No serious adverse events occurred during the course of the study

Discussion

- Alcaftadine 0.25%-treated subjects experienced significantly lower mean ocular itch scores than olopatadine 0.2%-treated subjects at 3 minutes post CAC (*P*=.0006)
- Alcaftadine 0.25%-treated subjects had significantly lower overall mean itch scores compared with olopatadine 0.2%-treated subjects over all 3 time points (3, 5, and 7 minutes) (*P*=.0390)
- A significantly greater proportion of alcaftadine 0.25%-treated subjects achieved minimal itch (itch score <1) compared with olopatadine 0.2%-treated subjects over all time points (*P*=.0121)
- Alcaftadine 0.25%- and olopatadine 0.2%-treated subjects had significantly lower overall mean itch scores and a greater proportion of subjects experienced minimal itch and zero itch scores than placebo over all time points, 16 hours post treatment instillation
- Both alcaftadine 0.25% and olopatadine 0.2% were safe and well tolerated