Diurnal Intraocular Pressure Control Responder Analysis with NCX 470 Versus Latanoprost in the Phase 3 MONT BLANC Trial

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Introduction and Background

The development of prostaglandin analogues (PGA) for the reduction of intraocular pressure (IOP) in patients with open angle glaucoma and ocular hypertension over 20 years ago provided a superior treatment option with better IOP control, fewer side effects, and convenience of once-daily dosing than what had historically been available.

Nicox S.A. (Biot, France) is developing a novel nitric oxide (NO) donating PGA, NCX 470. NCX 470 is a NO-donating analogue of bimatoprost that cleaves into the active metabolites of the prostamide bimatoprost and the NO-donating moiety 6-(nitrooxy)-hexanoic acid when exposed to ocular esterases and lowers IOP by two different pathways.

In the phase 2 DOLOMITES[a] study, 3 concentrations of NCX 470 (0.021%, 0.042%, and 0.065%) provided dose-dependent reductions in mean diurnal IOP at day 28 with statistical superiority over latanoprost demonstrated at the 2 highest concentrations.

In the MONT BLANC study, IOP-lowering efficacy and safety of NCX 470 0.1% was compared to latanoprost 0.005%. In this study, mean IOP was significantly reduced at all on-treatment time points with reductions ranging from 8.0 to 9.7 mmHg. [b]

Purpose

To characterize reductions in mean diurnal intraocular pressure (IOP) in eyes with ocular hypertension or open-angle glaucoma receiving the nitric oxide-donating bimatoprost NCX 470 0.1% or latanoprost 0.005% once daily in the phase 3 MONT BLANC trial.

Methods

Eligibility criteria for this phase 3, multinational, randomized, MONT BLANC trial included unmedicated IOP ≥26 mmHg at 8AM, ≥24 mmHg at 10AM, and ≥22 mmHg at 4PM in the study eye. Treated subjects underwent a washout of IOP-lowering medication prior to the eligibility assessment.

In this preplanned, subgroup analysis of data, the proportions of eyes attaining a mean diurnal IOP of <22 mmHg inclusive (mean of 8AM and 4PM measurements) with each treatment were compared across all visits at weeks 2, and 6, and month 3. Also, the proportions of eyes attaining time-matched (averaged across visits) mean percent IOP reduction from baseline of ≥20% to ≥40% with each treatment were compared.

Results

This analysis included data from 328 eyes receiving NCX 470 and 333 eyes receiving latanoprost with baseline mean diurnal IOPs of 26.89 mmHg and 26.80 mmHg, respectively. The proportions of eyes attaining mean diurnal IOP of ≤22 mmHg, ≤21 mmHg, ≤20 mmHg, and ≤19 mmHg were statistically similar between treatment groups, while significantly more ($p<0.05$) NCX 470-treated eyes than latanoprost-treated eyes attained mean diurnal IOP of ≤18 mmHg, ≤17 mmHg, ≤16 mmHg, ≤15 mmHg, and ≤14 mmHg (Figure 1).

The proportions of eyes receiving NCX 470 that attained mean percent IOP reductions from baseline of ≥20%, ≥25%, ≥30%, ≥35%, and ≥40% were numerically greater at 8AM, 10AM, and 4PM with NCX 470 versus latanoprost; these differences were statistically greater ($p<0.05$) at 8AM (≥30% and ≥35%), 10AM (≥25%, ≥30%, and ≥35%), and 4PM (≥20%, ≥25%, ≥30%, ≥35%, and ≥40%) (Figure 2).

Figure 1. NCX 470 0.1% was statistically superior in reducing the mean diurnal IOP to ≤ 18 mmHg compared to latanoprost. *$p<0.05$.

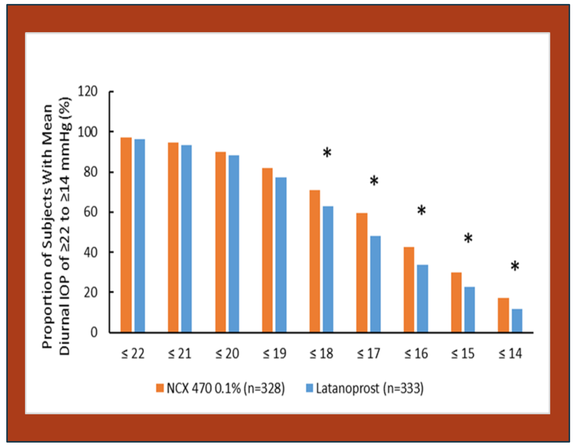
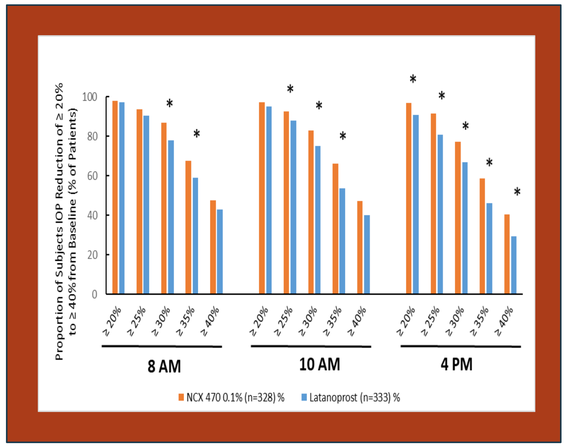


Figure 2. Proportions of eyes with prespecified mean IOP reductions from baseline between treatment groups. *$p<0.05$.



Discussion

A statistically significantly greater proportion of eyes treated with NCX 470 0.1% achieved mean diurnal IOPs at every pressure of ≤18 mmHg compared to those in the latanoprost 0.005% group in this preplanned analysis of the multinational phase 3 MONT BLANC clinical trial. Additionally, greater mean percent IOP reductions from baseline were seen in the eyes treated with NCX 470 than in eyes treated with latanoprost.

Conclusions

The results of this preplanned responder analysis of diurnal intraocular pressure control in this phase 3 study demonstrated that eyes receiving treatment with NCX 470 0.1% were more likely to attain low IOP (≤18 mmHg) and to attain greater percent IOP reductions from baseline than eyes receiving latanoprost 0.005%.

Acknowledgement and Contact Information

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Reference

[a] Walters, T., Kothe, A., Boyer, J. et al. J Glaucoma 2022; 382-391.

[b] Fechtner, R. Mansberger, S. Branch, J. Mulaney, J. Ziebell, S., Lopez, K, Hubatsch, D. Am J Ophthalmol 2024; 66-74.

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