Phentolamine Mesylate
Topical Treatment for Night Vision Disturbances
Results from a Phase 2 Clinical Study

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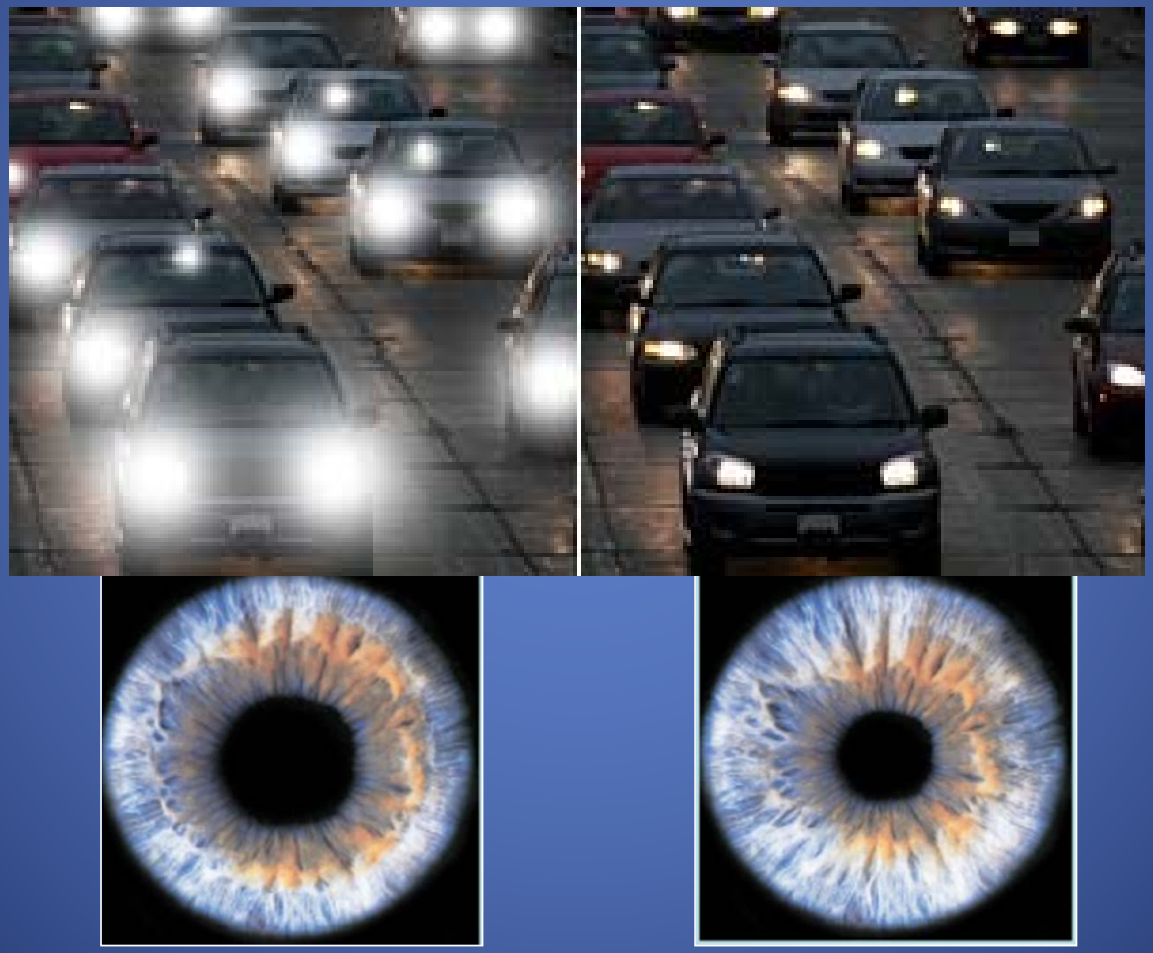
Financial Disclosure

- I have the following financial interests or relationships to disclose:
  - Abbott Medical Optics: C;
  - AcuFocus, Inc.: C,O;
  - Alcon Laboratories, Inc.: C;
  - ArcScan: C,O;
  - Carl Zeiss Inc: C;
  - Clerio Vision: C,O;
  - Oculus, Inc.: C;
  - OcuPhire: C,O;
  - RX Vision: C,O;
  - M & S Technologies: C;
  - Visiometrics: C,O;

4 Million People in the US Suffer from NVDs

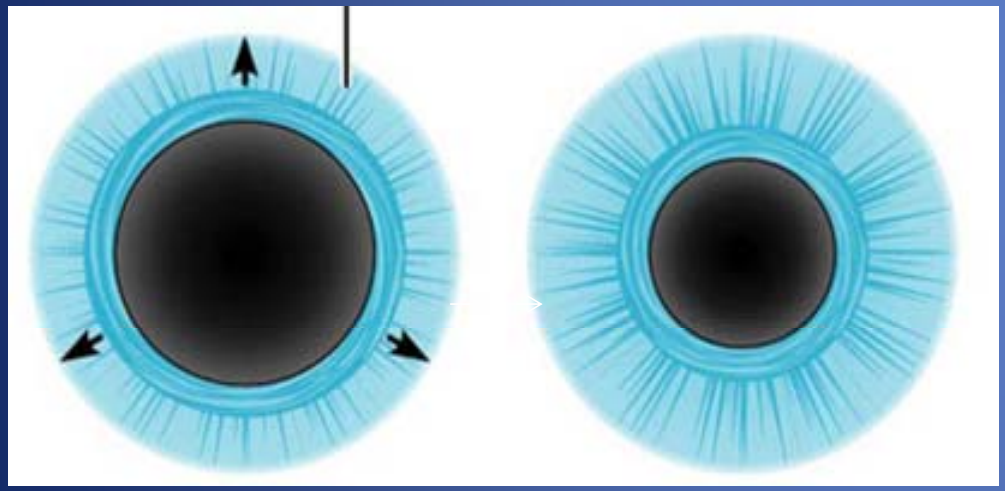
No Approved Solution Yet



Phentolamine Mesylate Eye Drop
A Non-Selective Alpha Antagonist

Mechanism of Action: Pupil Reduction and Vasodilation

α1 receptors
Dilator Muscles

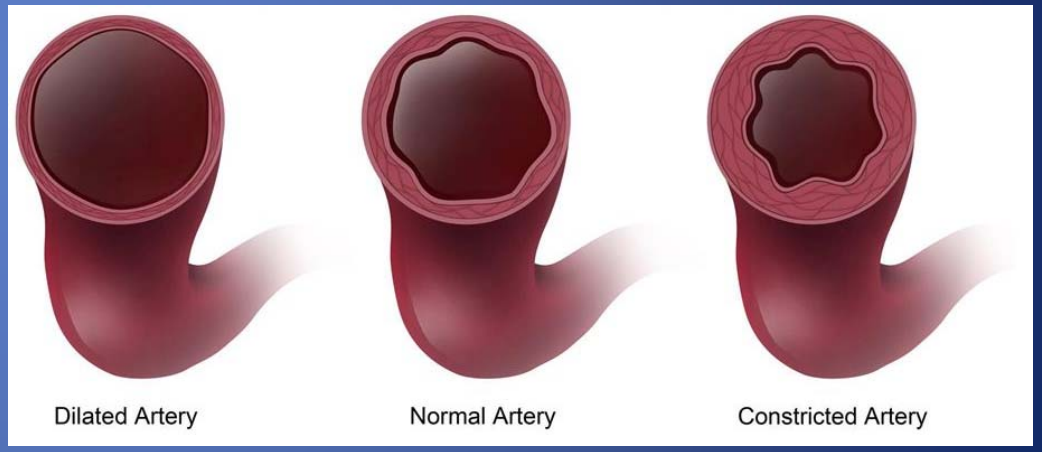


Normal Eye

Phentolamine Treatment

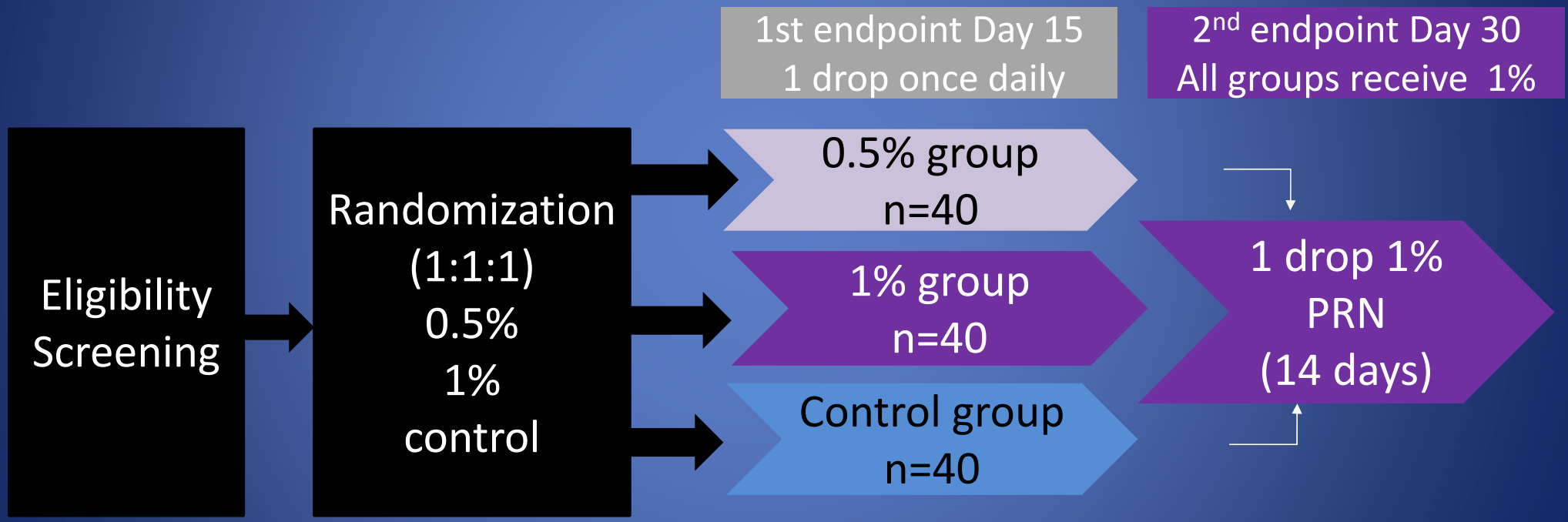
α1 agonists →

← α1 antagonists



Phentolamine Mesylate NVD Phase 2 Trial Design

n = 120 eyes (60 subjects)



Endpoints

Primary Efficacy Endpoint

- Percent of eyes with at least 50% (0.3 log) mesopic Contrast Sensitivity Function (CSF) improvement with glare at 2 or more frequencies (1.5, 3, 6, 12, 18 cpd)

Secondary Endpoints

- Pupil Diameter
- Mesopic Distance HCVA
- Mesopic Distance LCVA

Safety Endpoints

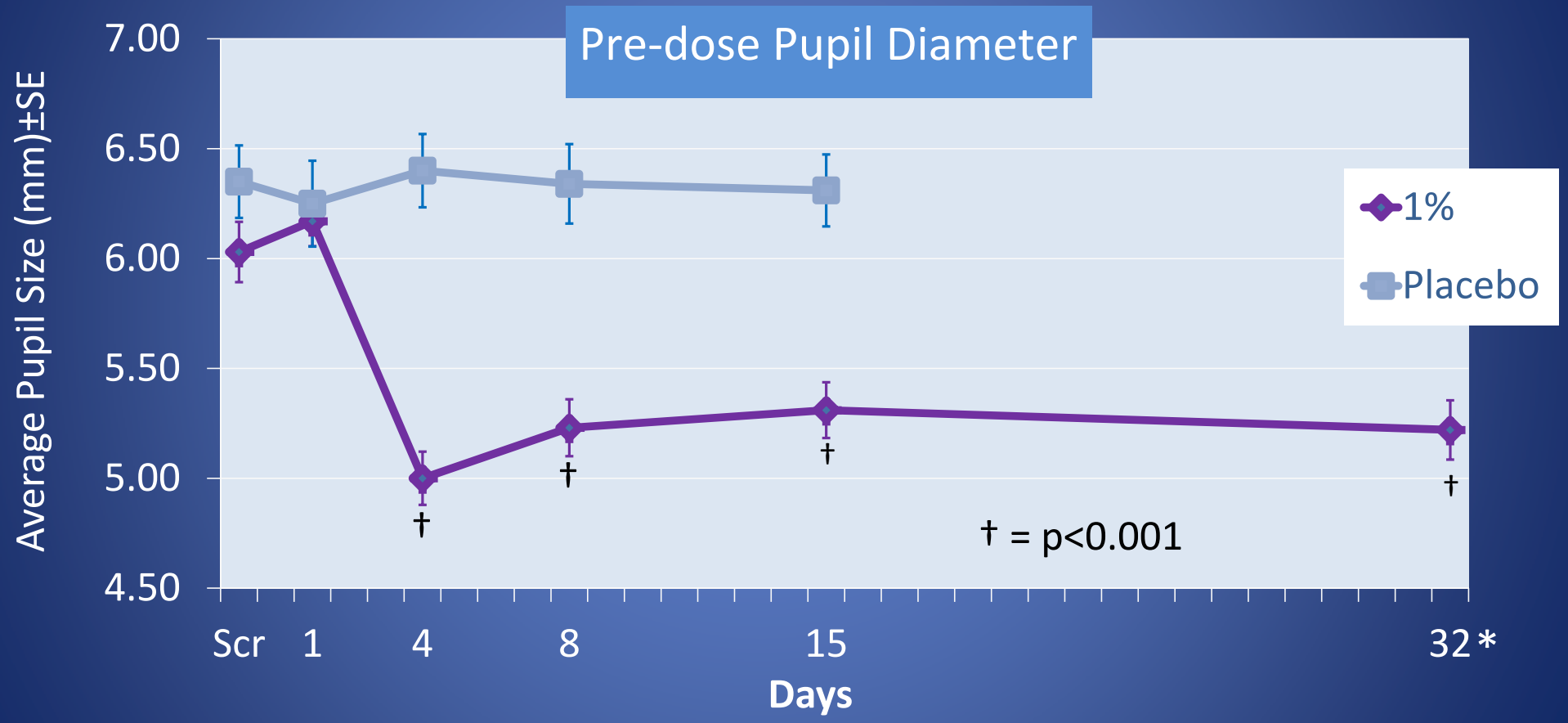
- Intraocular pressure (IOP)
- Eye redness
- Subjective comfort
- Heart rate and blood pressure
- Biomicroscopic and opthalmoscopic examination

Demographics

Trait		1.00%	0.50%	Placebo	Overall
Gender	Female	13	10	12	35
	Male	7	10	8	25
Race	Black	3	3	3	9
	Native American	0	1	0	1
	Other	0	0	2	2
	White	17	16	15	48
Ethnicity	Hispanic or Latino or Latino	11	12	11	34
	Not Hispanic or Latino	9	8	9	26
Iris Color	Blue	1	1	3	5
	Brown	15	15	14	44
	Green	1	2	0	3
	Hazel	3	1	3	7
	Other	0	1	0	1
Age (years)	N	20	20	20	60
	Mean	35.1	32.3	34.5	34
Central Corneal Thickness Right Eye (microm)	Mean	550.4	556	550.5	552.3

Phentolamine Mesylate Clinical Efficacy: Pupil Size

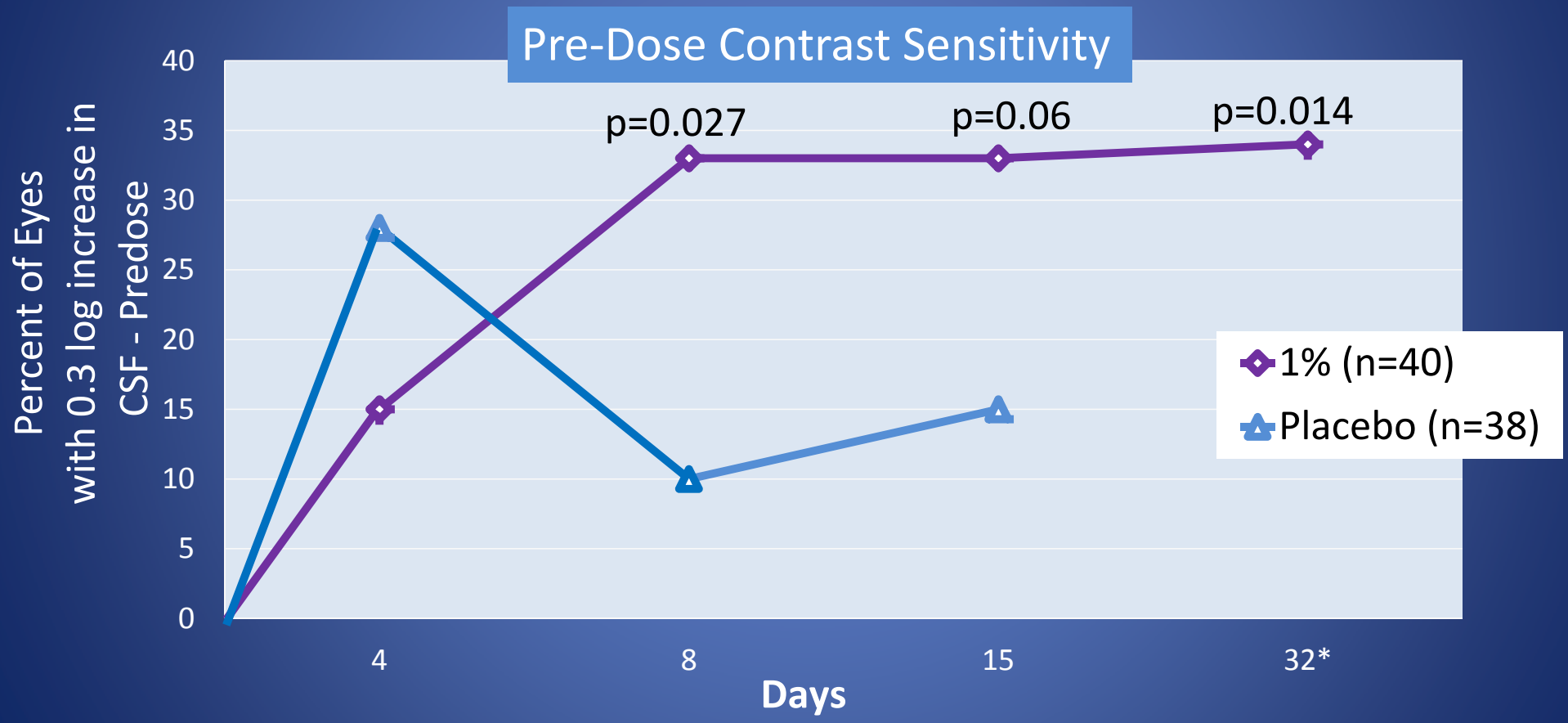
Treatment Induces Meaningful Pupil Size Reduction



***(Day 32 1.0% compared to Day 15 Placebo)**

Phentolamine Mesylate Clinical Efficacy: Contrast Sensitivity

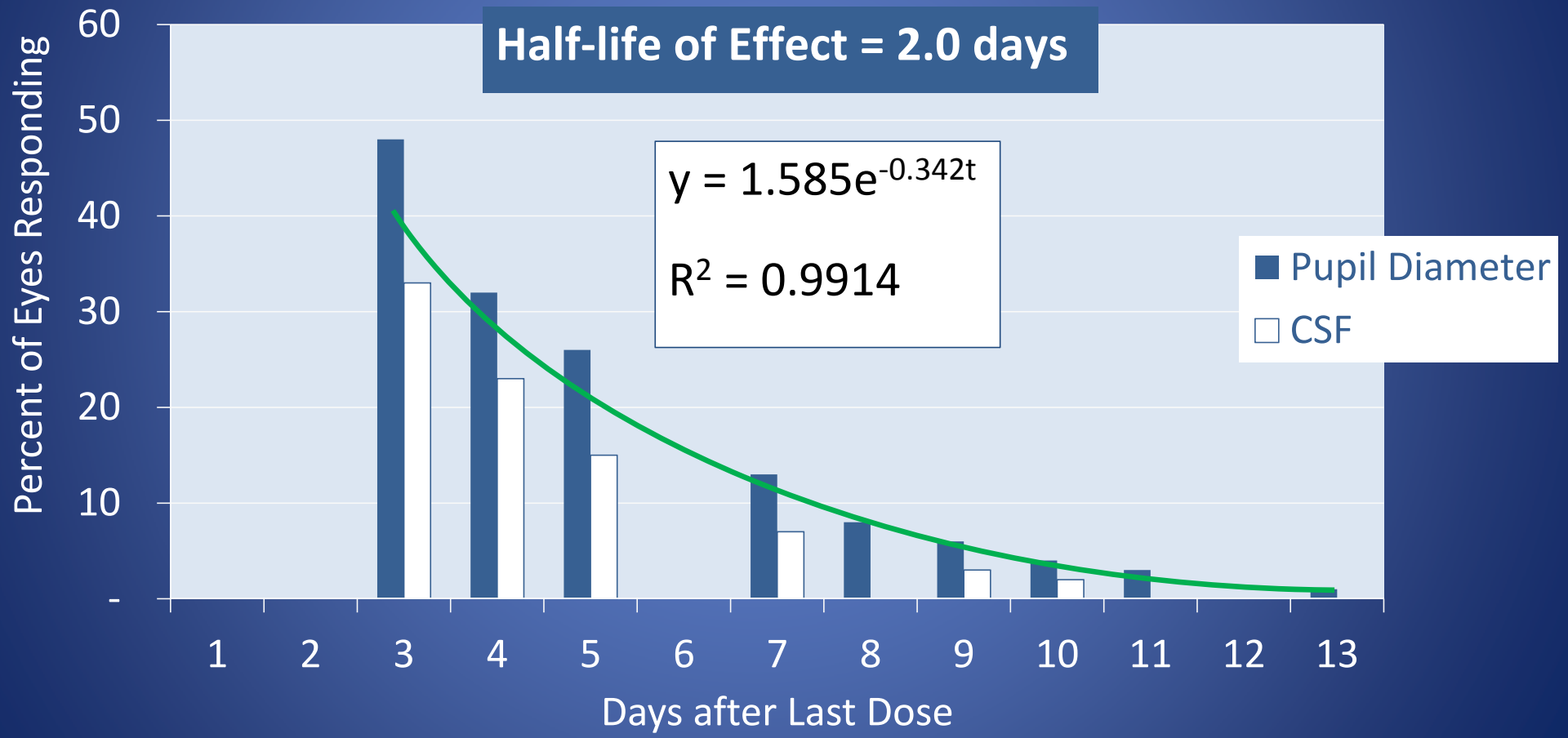
CSF Improvements Seen at Two or More Frequencies in >30% of Eyes



***(Day 32 1.0% compared to Day 15 Placebo)**

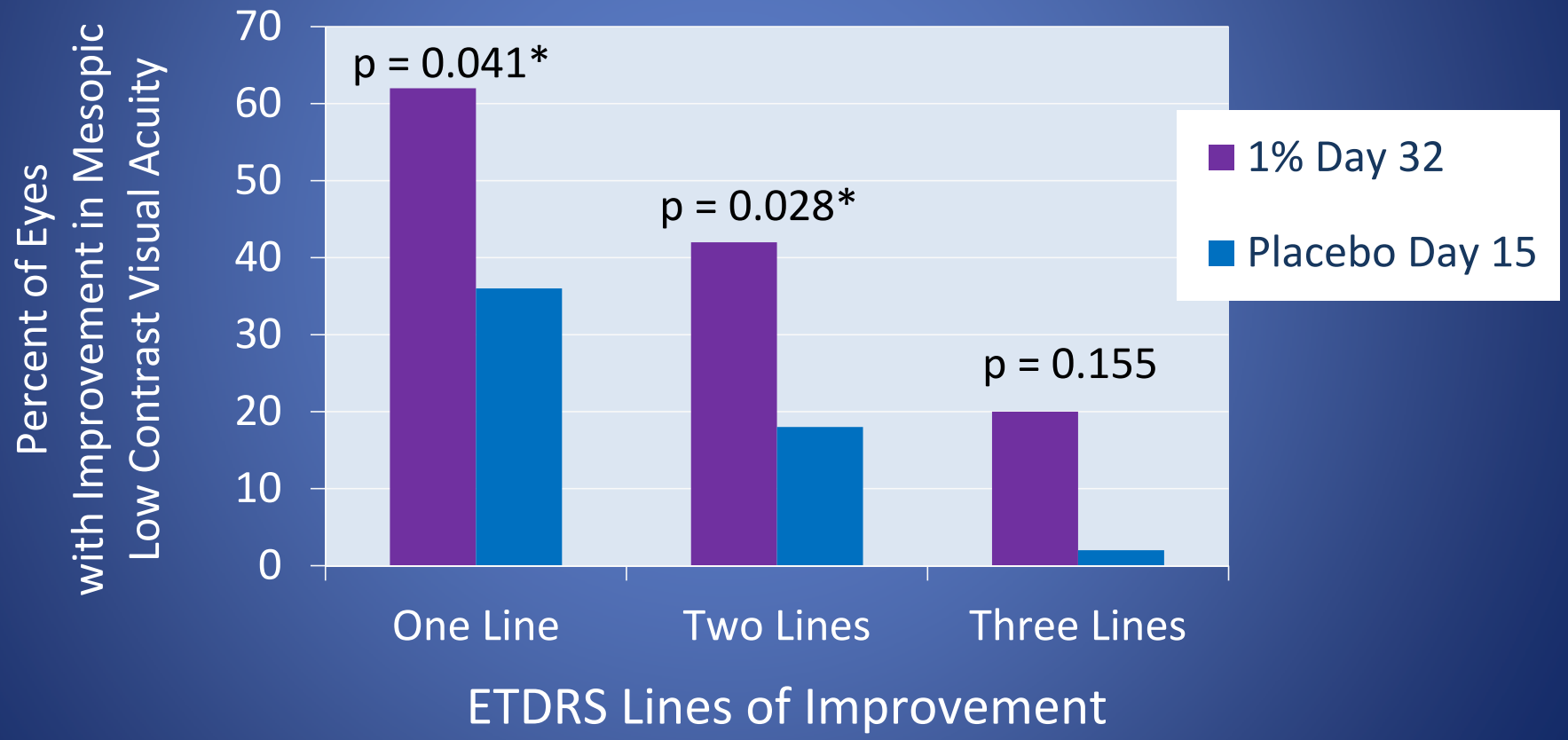
Phentolamine Mesylate Clinical Efficacy: Duration of Effect

Pupil Size Reduction and CSF Improvements Lasts > 24 hours



Phentolamine Mesylate Clinical Efficacy: Visual Acuity

2 Line Improvement in Mesopic Low Contrast VA in > 40% of Eyes



Phentolamine Mesylate 1% Ophthalmic Solution

- **Reduces pupil size** by 15% in mesopic conditions
- **Improves CSF** for more than 24 hours in those with night vision disturbances who would benefit from a smaller pupil (i.e., night myopes, keratoconus, LASIK/PRK, IOLs, other non-cataractous causes)
- **Improves mesopic low letter contrast visual acuity**
- **Causes mild, transient (6-8 hours) topical eye redness**
- **Has No Serious topical or systemic safety concerns**
- **Decreases IOP** by 15% in normotensive subjects

➡ **The 2 day efficacy half-life of phentolamine mesylate allows 24 hour coverage without daytime redness with a once daily bedtime dose**


Thank You!