Efficacy Study of Pilocarpine HCl Ophthalmic Solution (AGN-190584) in Participants With Presbyopia (GEMINI 1)

ClinicalTrials.gov Identifier: NCT03804268

Recruitment Status : Completed
First Posted : January 15, 2019
Results First Posted : December 28, 2021
Last Update Posted : December 28, 2021

Sponsor:
Allergan

Information provided by (Responsible Party):
Allergan

Study Description

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Brief Summary:
A study to evaluate the efficacy, safety, and pharmacokinetics of pilocarpine hydrochloride (HCl) ophthalmic solution (AGN-190584) when administered bilaterally, once daily for 30 days in participants with presbyopia.

Condition or disease	Intervention/treatment	Phase
Presbyopia	Other: Vehicle Drug: Pilocarpine HCl Ophthalmic Solution	Phase 3

Study Design

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Study Type :
Interventional (Clinical Trial)

Actual Enrollment :
323 participants

Allocation:
Randomized

Intervention Model:
Parallel Assignment

Masking:
Quadruple (Participant, Care Provider, Investigator, Outcomes Assessor)

Primary Purpose:
Treatment

Official Title:
A Phase 3, Multicenter, Double-Masked, Randomized, Vehicle-Controlled, Parallel-Group Study Evaluating the Safety and Efficacy of AGN-190584 in Participants With Presbyopia

Actual Study Start Date :
December 21, 2018

Actual Primary Completion Date :
October 31, 2019

Actual Study Completion Date :
October 31, 2019

Resource links provided by the National Library of Medicine

NIH NLM

Drug Information available for: Pilocarpine hydrochloride Pilocarpine

U.S. FDA Resources

Arms and Interventions

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Arm	Intervention/treatment
Placebo Comparator: Vehicle Participants received one drop of vehicle in each eye, once daily, for up to 30 days.	Other: Vehicle Vehicle, one drop in each eye, once daily, for up to 30 days.
Experimental: Pilocarpine HCl Ophthalmic Solution Participants received one drop of pilocarpine HCl ophthalmic solution 1.25% in each eye, once daily, for up to 30 days.	Drug: Pilocarpine HCl Ophthalmic Solution Pilocarpine HCl ophthalmic solution 1.25%, one drop in each eye, once daily, for up to 30 days. Other Names: • AGN-190584 • VUITY

Outcome Measures

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Primary Outcome Measures :

1. Percentage of Participants Gaining 3 Lines or More in Mesopic, High-contrast, Binocular Distance-Corrected Near Visual Acuity (DCNVA) at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

   Visual acuity for near (40 centimeters (cm)) target was measured in mesopic conditions using an eye chart. Mesopic condition was defined as low lighting 3.2 to 3.5 candelas per square meter (cd/m^2) measured at the target. Percentage of participants with 3 lines or more improvement from Baseline in mesopic, high-contrast DCNVA are reported.

Secondary Outcome Measures :

1. Percentage of Participants Gaining 3 Lines or More in Mesopic, High-contrast, Binocular Distance-Corrected Near Visual Acuity (DCNVA) at Day 30, Hour 6 [Time Frame: Baseline (Day 1) to Day 30 (Hour 6)]

   Visual acuity for near (40 cm) target was measured in mesopic conditions using an eye chart. Mesopic condition was defined as low lighting 3.2 to 3.5 candelas per square meter measured at the target. Percentage of participants with 3 lines or more improvement from Baseline in mesopic, high-contrast DCNVA are reported.

2. Percentage of Participants Gaining 3-lines or More in Mesopic, High-contrast, Binocular, DCNVA at Day 30, Hour 8 [Time Frame: Baseline (Day 1) to Day 30 (Hour 8)]

   Visual acuity for near (40 cm) target was measured in mesopic conditions using an eye chart. Mesopic condition was defined as low lighting 3.2 to 3.5 candelas per square meter measured at the target. Percentage of participants with 3 lines or more improvement from Baseline in mesopic, high-contrast DCNVA are reported.

3. Change From Baseline in Mesopic, High-contrast, Binocular DCNVA Letters at Day 30, Hour 0.5 [Time Frame: Baseline (Day 1) to Day 30 (Hour 0.5)]

   Visual acuity for near (40 cm) target was measured in mesopic conditions using an eye chart. Mesopic condition was defined as low lighting 3.2 to 3.5 cd/m^2 measured at the target. A positive change from Baseline indicates improvement in visual acuity. Mixed effect model for repeated measures (MMRM) was used for analyses.

4. Percentage of Participants Achieving 20/40 or Better in Photopic, High-contrast, Binocular, DCNVA at Day 30, Hour 1 [Time Frame: Day 30 (Hour 1)]

   Visual acuity for near (40 cm) target was measured in photopic conditions using an eye chart. Photopic condition was defined as high lighting ≥80 cd/m^2 measured at the target. Percentage of participants achieving 20/40 or better in photopic, high-contrast, binocular, DCNVA are reported.

5. Mean Change From Baseline in Mesopic Near Vision Presbyopia Task-based Questionnaire (NVPTQ) Performance Score at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

   NVPTQ had 12 questions on 4 reading tasks(reading a paragraph from book, excerpts from an article in newspaper, portion of a nutrition label, and a section from restaurant menu). Participants completed specific reading tasks under mesopic conditions without any near-vision correction and answered 3 questions for each task, rating their vision-related reading ability as 0=I could not read any text due to problems seeing up close,1=poor,2=fair,3=good,4=very good,5=excellent;impact of squinting on performance as 0=No,I did not squint, 1=Yes,squinting helped me read some/all text, 2=Yes,but I still could not read any of the text; and satisfaction as 0=very dissatisfied to 4=very satisfied. The score based on vision related ability and impact of squinting=(Book testlet+Newspaper testlet+Menu testlet+Nutrition Label testlet)/(testlets with non-missing responses), total possible score of 0-5. Higher scores=better outcomes;positive change from Baseline=improved performance(reading ability).

6. Change From Baseline in Photopic, High-contrast, Binocular Distance-corrected Intermediate Visual Acuity (DCIVA) Letters at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

   Visual acuity for intermediate (66 cm) target was measured in photopic conditions using an eye chart. Photopic condition was defined as high lighting ≥80 cd/m^2 measured at the target. A

positive change from Baseline indicates improvement in visual acuity. MMRM was used for analyses.

7. Percentage of Participants Gaining 3-lines or More in Mesopic, High-contrast, Binocular, DCNVA at Day 30, Hour 10 [Time Frame: Baseline (Day1) to Day 30 (Hour 10)]

   Visual acuity for near (40cm) target was measured in mesopic conditions using an eye chart. Mesopic condition was defined as low lighting 3.2 to 3.5 cd/m^2measured at the target. Percentage of participants with 3 lines or more improvement from Baseline in mesopic, high-contrast, binocular DCNVA are reported.

8. Change From Baseline in Mesopic, High-contrast, Binocular DCNVA Letters at Day 30, Hour 0.25 [Time Frame: Baseline (Day 1) to Day 30 (Hour 0.25)]

   Visual acuity for near (40 cm) target was measured in mesopic conditions. Mesopic condition was defined as low lighting 3.2 to 3.5 cd/m^2 measured at the target. A positive change from Baseline indicates improvement in visual acuity. MMRM was used for analyses.

9. Percentage of Participants Achieving 20/40 or Better in Photopic, High-contrast, Binocular, DCNVA at Day 30, Hour 3 [Time Frame: Day 30 (Hour 3)]

   Visual acuity for near (40 cm) target was measured in mesopic conditions using an eye chart. Photopic condition was defined as high lighting ≥80 cd/m^2 measured at the target. Percentage of participants achieving 20/40 or better in photopic, high-contrast, binocular, DCNVA are reported.

10. Mean Change From Baseline in Mesopic NVPTQ Satisfaction Score at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

    NVPTQ had 12 questions on 4 reading tasks(reading a paragraph from book, excerpts from an article in newspaper, portion of a nutrition label, and a section from restaurant menu). Participants completed specific reading tasks under mesopic conditions without any near-vision correction and answered 3 questions for each task, rating their vision-related reading ability as 0=I could not read any text due to problems seeing up close to 5=excellent; impact of squinting on performance as 0=No, I did not squint, 1=Yes, squinting helped me read some/all text, 2=Yes, but I still could not read any of the text; and satisfaction as 0=very dissatisfied,1=dissatisfied,2=neither satisfied nor dissatisfied,3=satisfied, 4=very satisfied. The score based on satisfaction items=(Book testlet+Newspaper testlet+Menu testlet+Nutrition Label testlet)/(testlets with non-missing responses) for a total possible score of 0 to 4. Higher scores=better outcomes; a positive change from Baseline=higher satisfaction.

11. Mean Change From Baseline in Presbyopia Impact and Coping Questionnaire (PICQ) Coping Score at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

PICQ=20 questions about impact experienced by participants due to their problems over past 7 days.PICQ Coping domain had 8 items: 1:Normal-sized text,2:Small-sized text,3:Information on a computer,4:Information on a cell phone,5:Increase font size,6:Use glasses to read close,12:Hold reading materials farther out/closer,13:Squint to read. Each item had response categories:0=never to 4=all the time. Items 3, 4, 5, and 6 had additional response categories with values of 9/10 to indicate the question is not applicable to participant and were assigned missing values.PICQ Coping Score:(Item 1,2 Testlet+Item 3,4 Testlet+Item 5+Item 6+Item 12+Item 13)/non-missing responses to the 6 components of coping score where Items 1,2 Testlet=(Item1+Item2)/non-missing responses to Items 1,2;Items 3,4 Testlet=(Item3+Item4)/non-missing responses to Items 3, 4. Score ranges:0=to least amount of coping to 4=greatest amount of coping. Higher scores=poorer outcome; a negative change from Baseline=improvement.

12. Mean Change From Baseline in PICQ Impact Score at Day 30, Hour 3 [Time Frame: Baseline (Day 1) to Day 30 (Hour 3)]

    PICQ had 20 questions about impact experienced by participants due to their problems seeing up over past 7 days. PICQ Impact domain had 6 items: Item 9:Rely on others,15:rest eyes,16:Feel older,17:Feel self-conscious,19:Take longer to complete a task,20:Inconvenient. First 5 impacts items included response categories: 0=never to 4=all the time. Item 20 had response categories: 0=not at all to 4=extremely. Item 9 included an additional response category with a value of 9 to indicate question was not applicable to participant and the responses were assigned missing values. PICQ Impacts Score=[(Item9+Item15+Items16,17Testlet+Item19+Item20)/(nonmissing responses to 5 components of impacts score)] where Items 16,17 Testlet=(Item16+Item17)/non-missing responses to Items 16 and 17. PICQ Impact score ranges from 0 to 4; with 0=least amount of impacts to 4=greatest amount of impacts. Higher scores correspond to poorer outcomes. A negative change from Baseline=improvement.

Eligibility Criteria

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Information from the National Library of Medicine

Choosing to participate in a study is an important personal decision. Talk with your doctor and family members or friends about deciding to join a study. To learn more about this study, you or your doctor may contact the study research staff using the contacts provided below. For general information, Learn About Clinical Studies.

Ages Eligible for Study:

40 Years to 55 Years (Adult)

Sexes Eligible for Study:

All

Accepts Healthy Volunteers:

No

Criteria

Inclusion Criteria:

- Subjective complaints of poor near vision that impact activities of daily living

Exclusion Criteria:

- History of cataract surgery, phakic intraocular lens surgery, corneal inlay surgery, radial keratotomy, or any intraocular surgery
- Use of any topical ophthalmic medications, including artificial tears other than the study medications during the study
- Use of temporary or permanent punctal plugs or history of punctal cautery in one or both eyes
- Corneal abnormalities (including keratoconus, corneal scar, Fuchs' endothelial dystrophy, guttata, or edema) in either eye that are likely to interfere with visual acuity
- Narrow iridocorneal angles (Shaffer grade ≤2 or lower on gonioscopy examination), history of angle-closure glaucoma, or previous iridotomy
- Diagnosis of any type of glaucoma or ocular hypertension

Contacts and Locations

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Information from the National Library of Medicine

To learn more about this study, you or your doctor may contact the study research staff using the contact information provided by the sponsor.

Please refer to this study by its ClinicalTrials.gov identifier (NCT number): ***NCT03804268***

Locations

Show 36 study locations

Sponsors and Collaborators

Allergan

Investigators

Study Director: Eleonora Safyan Allergan

Study Documents (Full-Text)

Documents provided by Allergan:

Study Protocol [PDF] December 5, 2018

Statistical Analysis Plan [PDF] January 30, 2020

More Information

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Publications automatically indexed to this study by ClinicalTrials.gov Identifier (NCT Number):

Waring GO 4th, Price FW Jr, Wirta D, McCabe C, Moshirfar M, Guo Q, Gore A, Liu H, Safyan E, Robinson MR. Safety and Efficacy of AGN-190584 in Individuals With Presbyopia: The GEMINI 1 Phase 3 Randomized Clinical Trial. JAMA Ophthalmol. 2022 Apr 1;140(4):363-371. doi: 10.1001/jamaophthalmol.2022.0059.

Responsible Party:
Allergan

ClinicalTrials.gov Identifier:
NCT03804268 History of Changes

Other Study ID Numbers:
1883-301-013

First Posted:
January 15, 2019 Key Record Dates

Results First Posted:
December 28, 2021

Last Update Posted:
December 28, 2021

Last Verified:
November 2021

Individual Participant Data (IPD) Sharing Statement:

Plan to Share IPD:

No

Studies a U.S. FDA-regulated Drug Product:

Yes

Studies a U.S. FDA-regulated Device Product:

No

Additional relevant MeSH terms:

Presbyopia
Refractive Errors
Eye Diseases
Ophthalmic Solutions
Pilocarpine
Pharmaceutical Solutions
Miotics
Autonomic Agents
Peripheral Nervous System Agents
Physiological Effects of Drugs
Muscarinic Agonists
Cholinergic Agonists
Cholinergic Agents
Neurotransmitter Agents
Molecular Mechanisms of Pharmacological Action