PHENYLEPHRINE HYDROCHLORIDE- phenylephrine hydrochloride solution/ drops
Akorn

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use PHENYLEPHRINE HYDROCHLORIDE OPHTHALMIC SOLUTION, USP safely and effectively. See full prescribing information for PHENYLEPHRINE HYDROCHLORIDE OPHTHALMIC SOLUTION, USP.
PHENYLEPHRINE HYDROCHLORIDE ophthalmic solution, USP 2.5% and 10%.
Initial U.S. Approval: 1939

INDICATIONS AND USAGE

Phenylephrine Hydrochloride Ophthalmic Solution is an alpha-1 adrenergic receptor agonist indicated to dilate the pupil (1)

DOSAGE AND ADMINISTRATION

For patients 1 year of age and older: (2.1)

- Apply one drop of Phenylephrine Hydrochloride Ophthalmic Solution (2.5% or 10% strength) to conjunctival fornix at 3 to 5 minute intervals up to a maximum of 3 drops per eye.
- To obtain a greater degree of mydriasis, use 10% strength

For pediatric patients less than 1 year of age: (2.2)

- Instill one drop of 2.5% strength to conjunctival fornix at 3 to 5 minute intervals up to a maximum of 3 drops per eye

DOSAGE FORMS AND STRENGTHS

Ophthalmic solution (sterile): (3)

- 25 mg of phenylephrine hydrochloride in one mL of solution (2.5%)
- 100 mg of phenylephrine hydrochloride in one mL of solution (10%)

CONTRAINDICATIONS

The 10% strength is contraindicated in:

- Patients with hypertension, or thyrotoxicosis (4.1)
- Pediatric patients less than 1 year of age due to increased risk of systemic toxicity (4.2)

WARNINGS AND PRECAUTIONS

- Not for injection: Topical ophthalmic use only (5.1)
- Serious cardiovascular reactions with 10% strength: Reactions have included ventricular arrhythmias and some have been fatal. Monitor blood pressure in patients with cardiovascular disease (5.2).
- Significant elevations in blood pressure: Caution in pediatric patients less than 5 years of age, and in patients with cardiovascular disease or hyperthyroidism. In patients at high risk, monitor blood pressure post treatment (5.3).
- Rebound miosis: Reported one day after instillation (5.4)

ADVERSE REACTIONS

- Ocular adverse reactions include eye pain and stinging on instillation, temporary blurred vision, and photophobia (6.1)
- Cardiovascular adverse reactions include increase in blood pressure, syncope, myocardial infarction, tachycardia, arrhythmia and subarachnoid hemorrhage (6.2)

To report SUSPECTED ADVERSE REACTIONS, contact Akorn at 1-800-932-5676 or FDA at 1-800-FDA-1088 or*www.fda.gov/medwatch*

DRUG INTERACTIONS

- Atropine-like drugs: May exaggerate the adrenergic pressor response (7.1)
- Potent inhalation anesthetic agents: May potentiate cardiovascular depressant effects (7.1)

See 17 for PATIENT COUNSELING INFORMATION.

Revised: 1/2022

FULL PRESCRIBING INFORMATION: CONTENTS*

* Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

Phenylephrine Hydrochloride Ophthalmic Solution, USP 2.5% and 10%, is indicated to dilate the pupil.

2 DOSAGE AND ADMINISTRATION

2.1 General Dosing Recommendations

In patients 1 year of age or greater, apply one drop of either phenylephrine hydrochloride ophthalmic solution 2.5% or 10% every 3 to 5 minutes to the conjunctival fornix as required up to a maximum of 3 drops per eye per day.

In order to obtain a greater degree of mydriasis, phenylephrine hydrochloride ophthalmic solution 10% may be needed.

2.2 Dosing in Pediatric Patients Less Than 1 Year of Age

In pediatric patients less than 1 year of age, one drop of phenylephrine hydrochloride ophthalmic solution 2.5% should be instilled at 3 to 5 minute intervals up to a maximum of 3 drops per eye.

3 DOSAGE FORMS AND STRENGTHS

Phenylephrine hydrochloride ophthalmic solution, USP 2.5% is a clear, colorless, sterile topical ophthalmic solution containing phenylephrine hydrochloride 2.5%: each mL contains 25 mg of phenylephrine hydrochloride.

Phenylephrine hydrochloride ophthalmic solution, USP 10% is a clear, colorless, sterile topical ophthalmic solution containing phenylephrine hydrochloride 10%.: each mL contains 100 mg of phenylephrine hydrochloride.

4 CONTRAINDICATIONS

4.1 Cardiac and Endocrine Disease

Phenylephrine hydrochloride ophthalmic solution 10% is contraindicated in patients with hypertension or thyrotoxicosis. Phenylephrine hydrochloride ophthalmic solution 2.5% should be used in these patients.

4.2 Pediatric Patients Less Than 1 Year of Age

Phenylephrine hydrochloride ophthalmic solution 10% is contraindicated in pediatric patients less than 1 year of age due to the increased risk of systemic toxicity. Phenylephrine hydrochloride ophthalmic solution 2.5% should be used in these patients *[See Dosage and Administration (2.2)]*.

5 WARNINGS AND PRECAUTIONS

5.1 Topical Ophthalmic Use Only

Phenylephrine hydrochloride ophthalmic solution 2.5% and 10% is not indicated for injection.

5.2 Cardiovascular Reactions

There have been reports of serious cardiovascular reactions, including ventricular

arrhythmias and myocardial infarctions, in patients using phenylephrine 10%. These episodes, some fatal, have usually occurred in patients with pre-existing cardiovascular diseases. Phenylephrine Hydrochloride Ophthalmic Solution, USP 2.5% should be used in these patients.

5.3 Elevation of Blood Pressure

A significant elevation in blood pressure is not common but has been reported following conjunctival instillation of recommended doses of phenylephrine 10%. The risk is less with phenylephrine 2.5%. Caution should be exercised with the use of phenylephrine 10% in pediatric patients less than 5 years of age and patients with hyperthyroidism, or cardiovascular disease. The post-treatment blood pressure of patients with cardiac and endocrine diseases and any patients who develop symptoms should be carefully monitored.

5.4 Rebound Miosis

Rebound miosis has been reported one day after receiving phenylephrine hydrochloride ophthalmic solution, and re-instillation of the drug produced a lesser mydriatic effect.

6 ADVERSE REACTIONS

The following serious adverse reactions are described below and elsewhere in the labeling:

- Cardiovascular Effects [*See Warnings and Precautions (5.2*)]
- Elevation in Blood Pressure [*See Warnings and Precautions (5.3*)]

The following adverse reactions have been identified following use of phenylephrine hydrochloride ophthalmic solution. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

6.1 Ocular Adverse Reactions

Eye pain and stinging on instillation, temporary blurred vision and photophobia, and conjunctival sensitization may occur.

6.2 Systemic Adverse Reactions

A marked increase in blood pressure has been reported particularly, but not limited to low weight premature neonates, infants and hypertensive patients.

Cardiovascular effects which have been seen primarily in hypertensive patients following topical ocular use of phenylephrine hydrochloride ophthalmic solution 10% include marked increase in blood pressure, syncope, myocardial infarction, tachycardia, arrhythmia and subarachnoid hemorrhage [*See Warnings and Precautions (5.2 and 5.3*)].

7 DRUG INTERACTIONS

7.1 Agents That May Exaggerate Pressor Responses

Concomitant use of phenylephrine and atropine may enhance the pressor effects and induce tachycardia in some patients. Phenylephrine may potentiate the cardiovascular depressant effects of some inhalation anesthetic agents.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Animal reproduction studies have not been conducted with topical phenylephrine. It is also not known whether phenylephrine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Phenylephrine hydrochloride should be given to a pregnant woman only if clearly needed.

8.3 Nursing Mothers

It is not known whether this drug is excreted in human breast milk. Because many drugs are excreted in human milk, caution should be exercised when phenylephrine hydrochloride ophthalmic solution 2.5% and 10% is administered to a nursing woman.

8.4 Pediatric Use

Phenylephrine hydrochloride ophthalmic solution 10% is contraindicated in pediatric patients less than 1 year of age [*See Contraindications (4.2)*].

8.5 Geriatric Use

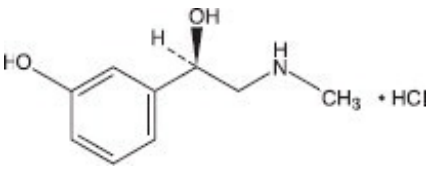
No overall differences in safety and effectiveness have been observed between elderly and younger adult patients.

10 OVERDOSAGE

Overdosage of phenylephrine may cause a rapid rise in blood pressure. It may also cause headache, anxiety, nausea, and vomiting, and ventricular arrhythmias. Prompt injection of a rapidly acting alpha-adrenergic blocking agent such as phentolamine has been recommended.

11 DESCRIPTION

Phenylephrine Hydrochloride Ophthalmic Solution, USP is a sterile, clear, colorless, topical α-adrenergic agonist for ophthalmic use. The active ingredient is represented by the chemical structure



Chemical Name: (R)-3-hydroxy-α[(methylamino)methyl]benzenemethanol hydrochloride.

Molecular Formula: $C_9H_{13}NO_2$.HCl

Molecular Weight: 203.67 g/mol

Each mL of Phenylephrine Hydrochloride Ophthalmic Solution, USP 2.5% contains: ACTIVE: Phenylephrine Hydrochloride 25 mg (2.5%); INACTIVES: Sodium Phosphate Monobasic, Sodium Phosphate Dibasic, Water for Injection. Phosphoric Acid and/or Sodium Hydroxide may be added to adjust pH (4.0 to 7.5). The solution has a tonicity of 340 mOsm/kg; PRESERVATIVE: Benzalkonium Chloride 0.1 mg (0.01%).

Each mL of Phenylephrine Hydrochloride Ophthalmic Solution, USP 10% contains: ACTIVE: Phenylephrine Hydrochloride 100 mg (10%); INACTIVES: Sodium Phosphate Monobasic, Sodium Phosphate Dibasic, Water for Injection. Phosphoric Acid and/or Sodium Hydroxide may be added to adjust pH (4.0 to 7.5). The solution has a tonicity of 985 mOsm/kg; PRESERVATIVE: Benzalkonium Chloride 0.1 mg (0.01%).

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Phenylephrine hydrochloride is an α-1 adrenergic agonist drug that is used in ophthalmology mainly for its mydriatic effect. After topical application to the conjunctiva, phenylephrine acts directly on α-adrenergic receptors in the eye, producing contraction of the dilator muscle of the pupil and constriction of the arterioles in the conjunctiva.

12.2 Pharmacodynamics

Maximal mydriasis occurs in 20 to 90 minutes with recovery after 3 to 8 hours.

Systemic absorption of sufficient quantities of phenylephrine may lead to systemic α-adrenergic effects, such as rise in blood pressure which may be accompanied by a reflex atropine-sensitive bradycardia.

12.3 Pharmacokinetics

The systemic exposure following topical administration of phenylephrine hydrochloride ophthalmic solution has not been studied. A higher systemic absorption is expected for the 10% solution than the 2.5% solution and when the corneal barrier function is compromised.

14 CLINICAL STUDIES

Pupillary dilation following topical administration of phenylephrine hydrochloride ophthalmic solution has been demonstrated in controlled clinical studies in adults and pediatric patients with different levels of iris pigmentation. Pupil movement is generally seen within 15 minutes, maximal mydriasis between 20 to 90 minutes and recovery after 3 to 8 hours. Darker irides tend to dilate slower than lighter irides.

16 HOW SUPPLIED/STORAGE AND HANDLING

Phenylephrine Hydrochloride Ophthalmic Solution, USP 2.5% is supplied as a sterile, aqueous, topical ophthalmic solution in an opaque, white low density polyethylene (LDPE)

bottle with a natural LDPE dropper tip and red cap in the following sizes:

NDC 17478-201-02 2 mL in 6 cc bottle
NDC 17478-201-15 15 mL in 15 cc bottle

Phenylephrine Hydrochloride Ophthalmic Solution, USP 10% is supplied as a sterile, aqueous, topical ophthalmic solution in an opaque, white low density polyethylene (LDPE) bottle with a natural LDPE dropper tip and red cap in the following sizes:

NDC 17478-206-05 5 mL in 10 cc bottle

After opening, Phenylephrine Hydrochloride Ophthalmic Solution, USP can be used until the expiration date on the bottle.

Storage: Store at 20° to 25°C (68° to 77°F).

Keep container tightly closed.

Protect from light and excessive heat.

Do not use if solution is brown or contains precipitate.

17. PATIENT COUNSELING INFORMATION

Advise patients not to touch the dropper tip to any surface as this may contaminate the solution. Inform patients that they may experience sensitivity to light and should protect their eyes in bright illumination while their pupils are dilated.

AKORN

Distributed by:
Akorn Operating Company LLC
Gurnee, IL 60031

EL00N Rev. 01/22

Principal Display Panel Text for Container Label:

NDC 17478-201-02

Phenylephrine

Hydrochloride

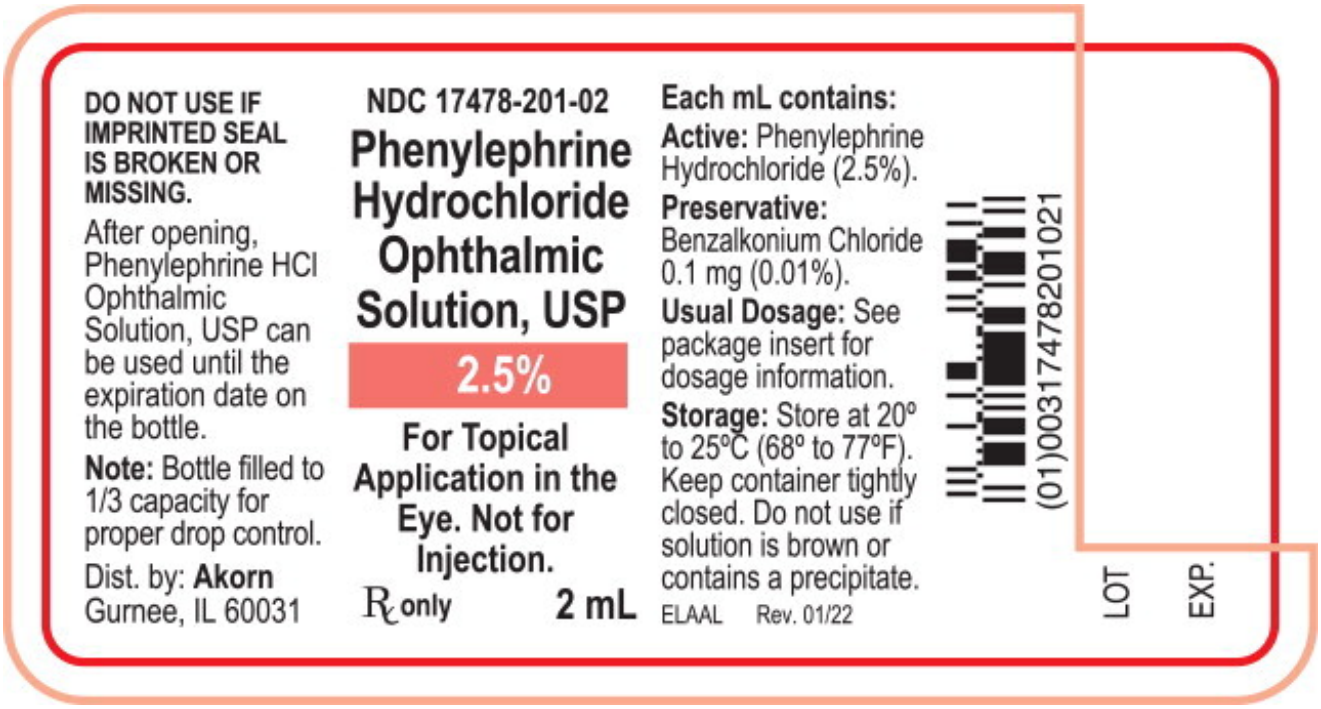
Ophthalmic

Solution, USP

2.5%

For Topical Application in the Eye. Not for Injection.

Rx only 2 mL



Principal Display Panel Text for Carton Label:

NDC 17478-201-02

Phenylephrine

Hydrochloride

Ophthalmic

Solution, USP

2.5%

For Topical Application in the Eye. Not for Injection.

2 mL
Rx only Akorn logo

Principal Display Panel Text for Container Label:

NDC 17478-206-05

Phenylephrine

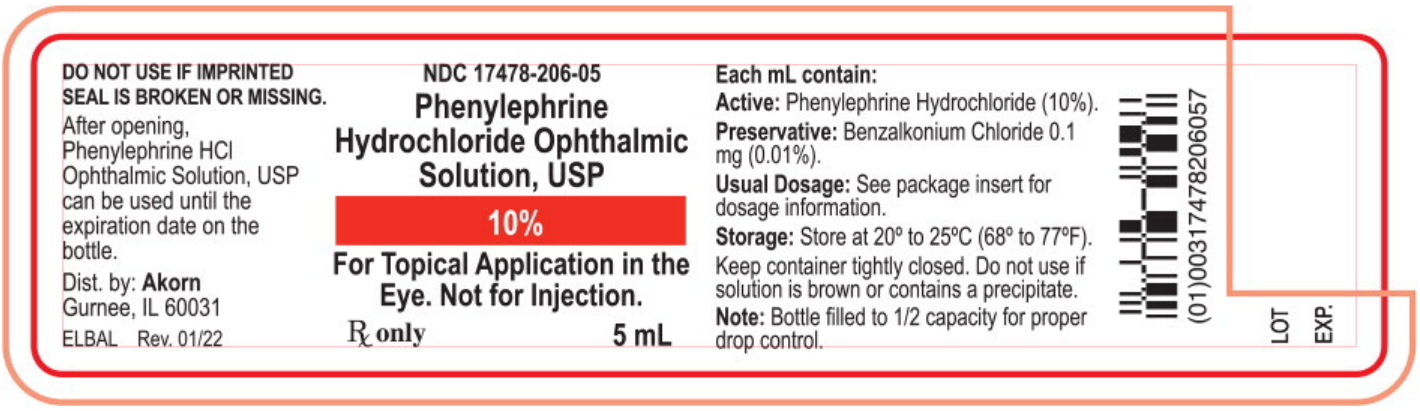
Hydrochloride Ophthalmic

Solution, USP

10%

For Topical Application in the Eye. Not for Injection.

Rx only 5 mL



Principal Display Panel Text for Carton Label:

NDC 17478-206-05

Phenylephrine

Hydrochloride

Ophthalmic

Solution, USP

10%

For Topical Application in the Eye. Not for Injection.

5 mL
Rx only Akorn logo

PHENYLEPHRINE HYDROCHLORIDE

phenylephrine hydrochloride solution/ drops

Product Information			
Product Type	HUMAN PRESCRIPTION DRUG	**Item Code (Source)**	NDC:17478-201
Route of Administration	OPHTHALMIC		

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
Phenylephrine Hydrochloride (UNII: 04JA59TNSJ) (Phenylephrine - UNII:1WS297W6MV)	Phenylephrine Hydrochloride	25 mg in 1 mL

Inactive Ingredients	
Ingredient Name	**Strength**
Sodium Phosphate, Dibasic, Anhydrous (UNII: 22ADO53M6F)	
Sodium Phosphate, Monobasic, Anhydrous (UNII: KH7I04HPUU)	
Sodium Hydroxide (UNII: 55X04QC32I)	
Phosphoric Acid (UNII: E4GA8884NN)	
Water (UNII: 059QF0KO0R)	
Benzalkonium Chloride (UNII: F5UM2KM3W7)	

Packaging				
#	**Item Code**	**Package Description**	**Marketing Start Date**	**Marketing End Date**
1	NDC:17478-201-02	1 in 1 CARTON	01/15/2015	
1		2 mL in 1 BOTTLE, DROPPER; Type 0: Not a Combination Product		
2	NDC:17478-201-15	1 in 1 CARTON	01/15/2015	
2		15 mL in 1 BOTTLE, DROPPER; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA207926	01/15/2015	11/30/2024

PHENYLEPHRINE HYDROCHLORIDE

phenylephrine hydrochloride solution/ drops

Product Information			
Product Type	HUMAN PRESCRIPTION DRUG	**Item Code (Source)**	NDC:17478-206
Route of Administration	OPHTHALMIC		

Active Ingredient/Active Moiety		
Ingredient Name	**Basis of Strength**	**Strength**
Phenylephrine Hydrochloride (UNII: 04JA59TNSJ) (Phenylephrine - UNII:1WS297W6MV)	Phenylephrine Hydrochloride	100 mg in 1 mL

Inactive Ingredients	
Ingredient Name	**Strength**
Sodium Phosphate, Dibasic, Anhydrous (UNII: 22ADO53M6F)	
Sodium Phosphate, Monobasic, Anhydrous (UNII: KH7I04HPUU)	

Sodium Hydroxide (UNII: 55X04QC32I)	
Phosphoric Acid (UNII: E4GA8884NN)	
Water (UNII: 059QF0KO0R)	
Benzalkonium Chloride (UNII: F5UM2KM3W7)	

Packaging

#	Item Code	Package Description	Marketing Start Date	Marketing End Date
1	NDC:17478-206-05	1 in 1 CARTON	01/15/2015	
1		5 mL in 1 BOTTLE, DROPPER; Type 0: Not a Combination Product		

Marketing Information

Marketing Category	Application Number or Monograph Citation	Marketing Start Date	Marketing End Date
NDA	NDA207926	01/15/2015	07/31/2024

Labeler - Akorn (117693100)

Establishment

Name	Address	ID/FEI	Business Operations
Akorn		117696790	PACK(17478-201, 17478-206) , LABEL(17478-201, 17478-206)

Establishment

Name	Address	ID/FEI	Business Operations
Akorn		117696832	MANUFACTURE(17478-201, 17478-206) , ANALYSIS(17478-201, 17478-206) , STERILIZE(17478-201, 17478-206)

Revised: 12/2023 Akorn