1. Name of the medicinal Product

Aminophylline Injection BP 250 mg/10 ml

1.1 Strength

250 mg/10 ml

1.2 Pharmaceutical Form

Injection

2. Qualitative and Quantitative Composition

2.1 Qualitative declaration

Aminophylline Hydrate BP

2.2 Quantitative declaration

Sr. No	Ingredients Chemical Name	Specification	Quantity (mg/ml)	Reason for Inclusion
1	Theophylline (A)	BP	21.00	Respiratory smooth muscle relaxants, Bronchodilator agents Cardiotonic agents
2	Ethylene Diamine	BP	6.000	
3	Water for Injections	BP	Q.S. to 1 ml	Vehicle

3. Pharmaceutical Form

Injection

A Clear Colourless to Slightly Yellowish Solution filled in 10 ml Clear Glass Ampoule

4. Clinical Particulars

4.1 Therapeutic Indications

Aminophylline Injection is indicated for the treatment of reversible bronchospasm associated with chronic bronchitis, emphysema, bronchial asthma and chronic obstructive pulmonary disease. It may also be used for paroxysmal dyspnea associated with left heart failure.

4.2 Posology

Aminophylline Injection may be administered by intravenous infusion, or by slow intravenous injection at a rate not exceeding 20 to 25 mg/min. Dosage must be individualized based on patient characteristics, clinical response and steady state theophylline concentration. Doses should be calculated on lean (ideal) body weight.

Adults: For patients not currently undergoing aminophylline or theophylline therapy, a dose of 6 mg aminophylline/kg lean body weight should be infused over 20 to 30 minutes. For patients currently undergoing therapy, the dase may be administered on the principlr that 0.6 mg aminophylline/kg lean body weight will increase the serum theophylline concentration by 1 microgram/Ml. If it is not possible to obtain serum theophylline concentration, a dose of 3 mg aminophylline/ kg lean body weight may be administered.

Children 6 months to 9 yrs.: loading dose 6 mg/kg, maintenance dose; for next 12 h: 1.2 mg/kg & beyond 12 h: 1.0 mg/kg. **Children 9 to 16 yrs.:** loading dose 6 mg/kg, maintenance dose; for next 12 h;1.0 mg/kg & beyond 12 h: 0.8 mg/kg. Non**-smoking adults** : Loading dose 6 mg/kg, maintenance dose; for next 12 h: 0.7 mg/kg & beyond 12 h: 0.5 mg/kg. **Older patients or those with cor pulmonae** : loading dose 6 mg/kg, maintenance dose; for next 12 h: 0.6 mg/kg & beyond 12 h: 0.3 mg/kg.

4.3 Method of Administration

Aminophylline Injection may be administered by intravenous infusion, or by slow intravenous injection at a rate not exceeding 20 to 25 mg/min. Dosage must be individualized based on patient characteristic, clinical response, and steady state theophylline concentration. Doses should be calculated on lean (ideal)

4.4 Contraindications

Contraindicated in patients hypersensitive to xanthines or to ethylenediamine, in patients with coronary artery disease and bronchiolitis.

4.5 Special Warnings and Special Precautions for Use

Aminophylline Injection should be used with extreme caution in patients currently undergoing therapy with other xanthines, such as theophylline. It should be used with caution in elderly patients, premature or neonatal infants, patients with congestive heart failure, chronic alcoholism, acute febrile illness, chronic obstructive pulmonary disease, cor pulmonale, influenza or those undergoing influenza immunization, renal or hepatic dysfunction, including hepatic cirrhosis, hypothyroidism, acute pulmonary oedema or pneumonia. Should be administered with caution in patients with seizure disorder, peptic ulcer, hyperthyroidism, hypertension, glaucoma, diabetes mellitus, tachyarrythmia, gastroesophageal reflux, compromised cardiac or circulatory function, angina pectoris or acute myocardial injury. Intravenous aminophylline must be administered slowly and cautiously to prevent dangerous CNS or cardiovascular toxicity. Intramuscular administration is not recommended as it causes intense local pain and sloughing of tissue. Should be used only when clearly needed during pregnancy. Drug is excreted into breast milk, consult doctor before breast-feeding.

4.6 Paediatric Population

Children 6 months to 9 yrs.: loading dose 6 mg/kg, maintenance dose; for next 12 h: 1.2 mg/kg & beyond 12 h: 1.0 mg/kg. **Children 9 to 16 yrs.:** loading dose 6 mg/kg, maintenance dose; for next 12 h;1.0 mg/kg & beyond 12 h: 0.8 mg/kg.

4.7 Interaction with other medicinal products and other forms of interaction

Cimetidine, allopurinol, lithium, quinolone antibiotics, macrolide antibiotics, rifampin, birth control pills, carbamazepine, phenytoin, barbiturates, beta-blockers, blood thinners (e.g., warfarin), fluvoxamine, mexiletine, moricizine, other adrenalin-like drugs (e.g., ephedrine), digoxin, pentoxifylline, tacrine, dipyridamole injection, methotrexate, disulfiram, thiabendazole, zileuton, flu vaccine or ticlopidine.

4.8 Additional information on special populations

No specific Information

4.9 Paediatric Population

No specific Information

4.10 Pregnancy and Lactation

4.10.1 Pregnancy

Pregnancy & Lactation: Should be used only when clearly needed during pregnancy.

4.10.2 Lactation

Drug is excreted into breast milk, consult doctor before breast-feeding.

4.11 Effects on ability to Drive and use Machines

Not applicable

4.12 Undesirable Effects

Flushing, nausea, vomiting, diarrhoea, loss of appetite, irritability, nervousness, trouble sleeping and increased urination may occur.

Unlikely but report promptly: stomach pain, coffee-ground vomit, dizziness/fainting, severe mental/mood changes, rapid breathing, irregular heartbeat (unusually fast or slow), chest pain, muscle twitching, seizures.

Allergic reactions include: Swelling of the throat, rash, trouble breathing.

4.13 Overdose

Symptoms: Fast or irregular heartbeat, nausea or vomiting, unusual nervousness or restlessness, agitation, irritability, headache and seizures.

Treatment: Symptomatic and supportive. Oral activated charcoal should be repeated until the serum theophylline concentration is below 20 microgram/ml.

5. Pharmacological Properties

5.1 Pharmacodynamics Properties

Aminophylline is a 2:1 complex of theophylline and ethylenediamine. In biological fluids aminophylline dissociates to theophylline. Theophylline is a xanthine derivative with the main pharmacological action of direct relaxation of bronchial smooth muscle, relieving bronchospasm. The bronchodilatory effect may be via inhibition of selected

phosophodiesterases, which produces an increase in intracellular cyclic AMP. It also directly stimulates the medullary respiratory centre. Other pharmacological etlects of theophylline include stimulation of cardiac muscle, stimulation of the central nervous system, transient diuresis, increased gastric secretion, decreased peripheral resistance and cerebral vasoconstriction.

5.2 Pharmacokinetic Properties

Aminophylline dissociates rapidly to theophylline in biological fluids. Theophylline is rapidly distributed throughout non-adipose tissues and extracellular fluids. The concentration in breast milk is approximately 70% that found in the serum. The apparent volume of distribution is 0.3 to 0. 7 l/kg (average 0.45 l/kg). Approximately 60% in adults and 35% in premature infants and neonates is bound to plasma proteins. Theophylline and its metabolites undergo renal excretion. The serum half-life is in otherwise healthy, non-smoking, asthmatic adults averages 7 to 9 hours, and clearance in this group is reported to be approximately 0.65 ml/kg/hr. Serum theophylline concentrations of around 5 to 20 microgram/ml (27.5 to 110 micromole/l).

5.3 Preclinical Safety Data

Not Applicable

6. Pharmaceutical Particulars

6.1 List of Excipients

Ethylene Diamine BP

Water for Injections BP

6.2 Incompatibilities

Not applicable.

6.3 Shelf Life

24 months

6.4 Special Precautions for Storage

Store below 30°C. Protect from light.

6.5 Nature and Contents of Container

A clear colourless to slightly yellowish solution filled in 10 ml clear glass ampoule (Autocut, white ring). Such 10 ampoules are packed in HIPS tray. Such 10 trays are packed in printed carton with packing insert.

6.6 Special precaution for disposal and other handling

Any unused product or waste material should be disposed of in accordance with local requirements.

7. Marketing Authorization Holder and Manufacturing Site Addresses

7.1 Name and Address of Marketing Authorization Holder

Lincoln Pharmaceuticals Limited
Trimul Estate, Khatraj, Taluka: Kalol,
District: Gandhinagar Gujarat, India.
Telephone no.: +91-79-41078096
Fax: +91-79-41078062
E-mail: hiren@lincolnpharma.com;
Web site: www.lincolnpharma.com

7.2 Name and Address of manufacturing site(s)

Lincoln Pharmaceuticals Limited
Trimul Estate, Khatraj, Taluka: Kalol,
District: Gandhinagar Gujarat, India.
Telephone no.: +91-79-41078096
Fax: +91-79-41078062
E-mail: hiren@lincolnpharma.com;
Web site: www.lincolnpharma.com

8. Marketing Authorization Number

To be included after obtaining first registration.

9. Date of First <Registration> / Renewal of The <Registration>

It will be applicable after registration of this product.

10. Date of Revision of the Text

April, 2023

11. Dosimetry (If Applicable)

Not Applicable

12. Instructions for preparation of radiopharmaceuticals (if Applicable)

Not Applicable

13. Document Revision History

Date of Revision	Revision Number	Document No.	Change Made
15/03/23	Rev_0	DAR/GDL/010A	First Issue