Folic Acid Injection

5 mg/mL
USP

Anemia Therapy

DESCRIPTION
Folic Acid Injection, USP is a sterile, nonpyrogenic solution of sodium folate (prepared by the addition of sodium hydroxide to folic acid) in Water for Injection intended for intramuscular (IM), intravenous (IV) or subcutaneous (SC) use.

Folic acid is a complex organic compound present in liver, yeast and other substances, which may be prepared synthetically. It is a yellow or yellowish-orange, odorless crystalline powder. It is very slightly soluble in water, insoluble in alcohol, chloroform, ether; readily dissolves in dilute solutions of alkali hydroxides and carbonates. It is chemically designated as: L-Glutamic acid, \( N-[4-[[\text{2-amino-1-4-dihydro-4-oxo-6-pteridinyl}] \text{methyl}]\text{amino}]\text{-benzoyl}]^{-}, \) and has the following structural formula:

![Structural formula of folic acid](image)

Molecular Formula: \( \text{C}_{19}\text{H}_{19}\text{N}_{7}\text{O}_{6} \)

Molecular Mass: 441.40

Each mL contains: Sodium folate (equivalent to 5 mg folic acid); edetate disodium 2 mg; benzyl alcohol 15 mg (added as preservative); Water for Injection q.s. Hydrochloric acid and/or sodium hydroxide for pH adjustment (pH 8.0-11.0).
CLINICAL PHARMACOLOGY
In man, an exogenous source of folate is required for nucleoprotein synthesis and maintenance of normal erythropoiesis. Folic acid, whether given by mouth or parenterally, stimulates specifically the production of red blood cells, white blood cells, and platelets in persons suffering from certain megaloblastic anemias.

INDICATIONS AND USAGE
Folic acid alone is effective in the treatment of megaloblastic anemias due to a deficiency of folic acid as may be seen in tropical or nontropical sprue, in anemias of nutritional origin, pregnancy, infancy or childhood.

WARNINGS
This product contains aluminum that may be toxic. Aluminum may reach toxic levels with prolonged parenteral administration if kidney function is impaired. Premature neonates are particularly at risk because their kidneys are immature, and they require large amounts of calcium and phosphate solutions, which contain aluminum.

Research indicates that patients with impaired kidney function, including premature neonates, who receive parenteral levels of aluminum at greater than 4 to 5 mcg/kg/day accumulate aluminum at levels associated with central nervous system and bone toxicity. Tissue loading may occur at even lower rates of administration of TPN products and of the lock-flush solutions used in their administration.

Folic acid alone is improper therapy in the treatment of pernicious anemia and other megaloblastic anemias where vitamin B₁₂ is deficient.

Folic Acid Injection, USP contains the preservative benzyl alcohol. There have been reports of fatal “gasing syndrome” in neonates (children less than one month of age) following the administration of intravenous solutions containing the preservative benzyl alcohol. Manifestations of the disease included: metabolic acidosis, respiratory distress, gasping respirations, central-nervous system dysfunction, convulsions, intracranial hemorrhages, hypoactivity, hypotonia, cardiovascular collapse and death.

PRECAUTIONS
Folic acid in doses above 0.1 mg daily may obscure pernicious anemia in that hematologic remission can occur while neurological manifestations remain progressive.

ADVERSE REACTIONS
Allergic sensitization has been reported following both oral and parenteral administration of folic acid.

DOSAGE AND ADMINISTRATION
Parenteral Administration: IM, IV and SC routes may be used if the disease is exceptionally severe or if gastrointestinal absorption may be, or is known to be impaired.
Usual Therapeutic Dosage – In adults and children (regardless of age): up to 1 mg daily. Resistant cases may require larger doses.

Maintenance Level – When clinical symptoms have subsided and the blood picture has become normal, a maintenance level should be used, i.e., 0.1 mg for infants and up to 0.3 mg for children under four years of age, 0.4 mg for adults and children four or more years of age, and 0.8 mg for pregnant and lactating women, per day, but never less than 0.1 mg per day. Patient should be kept under close supervision and adjustment of the maintenance level made if relapse appears imminent.

In the presence of alcoholism, hemolytic anemia, anticonvulsant therapy or chronic infection, the maintenance level may need to be increased.

Parenteral drug products should be inspected visually for particulate matter and discolouration prior to administration, whenever solution and container permit.

HOW SUPPLIED
Folic Acid Injection, USP (5 mg/mL) is available as:

C18410 10 mL multiple dose, flip-top vial. Packaged individually.

Store at controlled room temperature between 15 – 30 ºC.

PROTECT FROM LIGHT.
Retain vial in box until contents are used.