Generic Name Citicoline

Trade Name Ceham

1. NAME OF THE MEDICINAL PRODUCT: Citicoline

2. QUALITATIVE AND QUANTITATIVE COMPOSITION:

Each film coated tablet contains:

Citicoline sodium equivalent to
Citicoline……500mg

3. PHARMACEUTICAL FORM:
Film coated tablet

4. CLINICAL PARTICULARS

4.1 Therapeutic Indications: For the treatment of disturbance of consciousness as resulting from head injuries, brain operation and acute stage of cerebral infarction in adult only.

For the treatment of patients with serious cerebral injuries of vascular traumatic nature with or without loss of consciousness & for treatment of degenerative damages & chronic cerebral vascular injuries in senile dementia.

4.2 Posology and Method of Administration

The usually recommended dose of Citicoline is 500mg to 1000mg daily and can increase up to 2000mg.

Elderly: No dosage adjustment is required in this patient population and the usually recommended adult dose can be administered.

4.3 Contraindications
Hypersensitivity to citicoline or any other component of the formulation

4.4 Special Warnings and Special Precautions for Use:
Citicoline may cause hypotension and in case necessary the hypotensive effect can be treated with corticosteroids or sympathomimetics.

4.5 Interaction with Other Medicinal Products and Other Forms of Interaction:

Citicoline must not be used with medicines containing meclophenoxates (or centrophenoxine). Citicoline increases the effects of L-dopa.

4.6 Fertility, Pregnancy and Lactation

There are no adequate and well controlled studies of citicoline during pregnancy and lactation. Citicoline should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. Caution should be exercised during breastfeeding because it is not known whether citicoline is excreted in human breast milk.

4.7 Undesirable Effects

Citicoline is generally well tolerated. Reported adverse events with citicoline are gastrointestinal disturbances, dizziness and asthenia.

5. PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic Properties:

Citicoline is a pyrimidine 5'-nucleotide which serves as an essential precursor in the synthesis of lecithin (phosphatidylcholine) and other phospholipids.
Mechanism of Action: The extensive damage caused by stroke requires repair and regeneration of axons and synapses of neurons, so new membrane production is essential. The primary mechanism by which citicoline is believed to have a therapeutic effect in stroke is its ability to increase the synthesis of phosphatidylcholine, the primary neuronal membrane component. It also enhances acetylcholine synthesis and might thus ameliorate symptoms caused by the stroke-induced loss of cholinergic neurons.
Another mechanism by which citicoline may have a more acute effect on the outcome of stroke patients relates to its ability to reduce free fatty acid accumulation at the site of injury and thus to prevent further damage.
Citicoline avoids, reduces or reverses the effects of ischemia and/or hypoxia in major parts of animals and cellular models studied, and acts in the cranial traumatic forms, reduces and limits the injuries to the membranes of the nerve cells, re-establishes the sensitivity and the function of the regulatory intracellular enzymes and accelerates the reabsorption of the cerebral edema.
Thus, considerable evidence accumulated supports the use of citicoline for increasing, maintaining and repairing the membranes and neuronal function in situations eg, ischemia and traumatic injuries. In patients with senile dementia, citicoline reduces the evolution of damages.

5.2 Pharmacokinetic Properties:

Choline derived from citicoline crosses the blood brain barrier, presumably serving as a source for acetylcholine and phosphatidylcholine (lecithin) synthesis. The major portion of a dose of citicoline

appears to be incorporated into issues and/or used in biosynthetic/biodegradation pathways, including lecithin/lipid membranes synthesis.

Citicoline is well-absorbed after oral administration, it has an absolute bioavailability of approximately 99%. Citicoline is metabolized in the liver to free choline. The liver is capable of synthesizing lecithin from choline and resynthesizing citicoline from cytidine and choline.

Due to difficulties in detecting plasma levels of citicoline itself, assays have been performed for free choline or total plasma radioactivity in terms of citicoline equivalents. Plasma choline levels are elevated significantly after oral administration. Two peaks of plasma citicoline equivalents have been reported after oral doses of radiolabeled citicoline (300 mg). An initial peak is observed in approximately 1 hr (1.5 mcg/mL), presumably related to a mixture of unchanged citicoline and its metabolites (choline and cytidine diphosphate). A 2nd peak of approximately 3 mcg/mL is seen in 24 hrs post-dose, and may be due to delayed absorption of citicoline or continued metabolite accumulation over this time period.

Small amounts of a dose are recovered in urine (2-3%) and in feces (<1%). Approximately 12% of a dose is eliminated as respiratory carbon dioxide. Elimination half-life of citicoline is 3.5 hrs (1st peak concentration), 125 hrs (2nd peak concentration).

5.3 Preclinical Safety Data

6. PHARMACEUTICAL PARTICULARS

6.1 Shelf-life: 24 Months

6.2 Special Precautions for Storage: Store in a cool, dry place, protected from light.

6.3 Nature and Contents of Container: 10X10 tablet strips

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