Valproic acid indications

Effective in primary Generalized tonic-clonic seizures (GTC). Also useful in absence with GTC, juvenile myoclonic epilepsy, and partial seizures (not FDA approved for latter). Also FDA approved for migraine prophylaxis. Note: severe GI upset and short half–life make valproic acid much less useful than Depakote® (divalproex sodium).

Lennox-Gastaut syndrome Approximately 50% of patients have reduced seizures with valproic acid.

Absence seizure.

Myoclonic status treatment: valproic acid (drug of choice). Place NG, give 20mg/kg per NG loading dose. Mainte- nance: 40 mg/kg/d divided. Can add lorazepam (Ativan®) or clonazepam (Klonopin®) to help with acute control.

It has found clinical use as an anticonvulsant and mood-stabilizing drug, primarily in the treatment of epilepsy, bipolar disorder and prevention of migraine headaches. VPA is a liquid at room temperature, but it can be reacted with a base such as sodium hydroxide to form the salt sodium valproate, which is a solid.

The acid, salt, or a mixture of the two (valproate semisodium) are marketed under a number of different brand names, including: Depakote, Epilim, Valparin, Valpro, Vilapro and Stavzor. It is on the World Health Organization's List of Essential Medicines, a list of the most important medication needed in a basic health system.

Both valproic acid and levetiracetam are antiepileptic drugs, often used either alone or in combination.

A study compares valproate (VPA) with levetiracetam (LEV) as an intravenous (i.v.) anticonvulsant treatment in intensive care patients suffering from aneurysmal subarachnoid hemorrhage (aSAH) with a high risk of seizures.

A prospective, single-center patient registry of 35 intensive care unit (ICU) patients with onset seizure and/or high risk of seizures underwent an anticonvulsive, first-line single treatment regimen either with VPA or LEV. Plasma concentrations (pc), interactions between drugs in the ICU context, adverse effects and seizure occurrences were observed and recorded.

A significant decrease in the pc in patients treated with LEV was observed after changing from intravenous (160±51µmol/l) to enteral liquid application (113±58µmol/l), corresponding to a 70.3% bioavailability for enteral liquid applications. The pc in VPA patients decreased significantly, from (491±138µmol/l) to (141±50µmol/l), after adding meropenem to the therapy ($p<0.05$). Three epileptic seizures occurred during anticonvulsive therapy in the LEV group, and two in the VPA group, including one non-convulsive status epilepticus (NCSE).

Though this finding needs further verification, the enteral liquid application of levetiracetam seems to be associated with lower bioavailability than the common oral application of levetiracetam. The use of the antibiotic drug meropenem together with valproic acid leads to lower pc levels in patients treated with of valproic acid. For clinical practice, this indicates the need to monitor the levels of valproic acid in combination with meropenem [1)].

Medical therapy is usually ineffective for inactive pituitary macroadenoma. Agents that could be considered include: dopamine agonists, valproic acid, somatostatin analogues, rosiglitazone, and serotonin agonists agonists, valproic acid, somatostatin analogues, rosiglitazone, and serotonin agonists

Valproic acid for Glioma

see Valproic acid for Glioma.

Neuroprotection

The neuroprotective effects of VPA have been demonstrated in several models of acute CNS injuries, such as stroke, TBI, and SCI. VPA protects the brain from injury progression via anti-inflammatory, anti-apoptotic, and neurotrophic effects [2].

1)
Mink S, Muroi C, Seule M, Bjeljac M, Keller E. Levetiracetam compared to valproic acid: plasma concentration levels, adverse effects and interactions in aneurysmal subarachnoid hemorrhage. Clin Neurol Neurosurg. 2011 Oct;113(8):644-8. doi: 10.1016/j.clineuro.2011.05.007. Epub 2011 Jun 23. PubMed PMID: 21703756.
2)
Chen S, Wu H, Klebe D, Hong Y, Zhang J. Valproic acid: a new candidate of therapeutic application for the acute central nervous system injuries. Neurochem Res. 2014 Sep;39(9):1621-33. doi: 10.1007/s11064-014-1241-2. Epub 2014 Jan 31. PubMed PMID: 24482021.