ACTH and Corticosteroids

Comment

First line treatment for infantile spasms (IS) and suppressing hypsarrhythmia. ACTH is considered by many epileptologists to be preferred in IS, except in tuberous sclerosis (see vigabatrin), and good results are seen within 2 weeks. Corticosteroids are a useful alternative, and may be valuable for longer term treatment in late-onset epileptic encephalopathies.

FDA indication

ACTH: West syndrome <2yo

Mechanism

Hypotheses only. ?antiinflamatory ?immunosuppressant. ACTH is effective in IS in patients with adrenal insufficiency, so not only release of corticosteroids. ACTH increases RNA and DNA synthesis and promotes brain maturation. A direct action of ACTH on amygdala neurones leads ? inhibition of corticotropin releasing hormone (CRH)

Dosing

ACTH is IM or SQ. Dosing varies markedly; there is a high dose and low dose schedule, that are probably equally efficacious.

Serum levels, labs

Electrolytes (Na, K). Blood glucose. GI prophylaxis and BP measurements. Bone density measurements if prolonged use.

Important interactions

- Barbiturates can decrease the effect of ACTH.
- Enzyme-inducing drugs increase the metabolic clearance of prednisolone. Many drugs can inhibit the metabolism of prednisolone -- b/c ACTH acts partially via corticosteroids, these interactions may be seen w/ ACTH.
- Inhibitors of CYP3A4 potentiate corticosteroids.

Important side effects

All those of steroids, including increased ICP, cerebral atrophy, increased IOP, cataracts, necrosis of the femoral or humeral heads. Endocrine suppression. Immune suppression - so do not administer live or live attenuated vaccines. Corticosteroids require taper to discontinue.

Contraindications

Use of live or live attenuated vaccines
Congenital infection; systemic fungal infection
Congestive heart failure
Hypertension, uncontrolled
Ccular herpes simplex infection
Osteoporosis
Peptic ulcers
Primary adrenocortical insufficiency; recent surgery