

Cortrosyn (ACTH, synthetic)

Indication: Diagnosis of Adrenocortical Insufficiency

High Dose ACTH Stimulation:

Obtain a baseline cortisol level. Dilute 0.25mg of Cortrosyn (Cosyntropin or synthetic ACTH) vial with 1ml of 0.9% NaCl. Give IV push over 2 minutes. Flush the line after administering the dose. Normal patients will have an increase of at least 7mcg/dL 30 minutes after receiving Cortrosyn. If the level is taken 60 minutes after receiving Cortrosyn, there should be an increase of at least 11mcg/dL. The time of day that the test is given does not matter. If you get a subnormal Cortrosyn test result, you must determine whether the patient has primary or secondary adrenocortical insufficiency. The manufacturer of Cortrosyn recommends that patients with subnormal Cortrosyn test results be given 40 units of repository corticotropin injection IM twice daily for 4 days or 60 units twice daily for 3 days, followed by a second Cortrosyn test. In patients with primary adrenocortical insufficiency, there will be little or no increase in plasma cortisol concentrations following the second Cortrosyn test; patients with secondary adrenocortical insufficiency will have higher or even normal plasma cortisol concentrations.

Low Dose ACTH Stimulation:

Low dose ACTH stimulation is done the same as high dose except the dose is 1mcg rather than 250mcg (0.25mg). High dose has been the standard test, but low dose has come out in just the last few years. The dose must be prepared by the pharmacy. A 250mcg vial will be diluted in 250ml, and 1ml (1mcg) will be drawn and delivered to the floor for administration. It is very important to flush the line after the dose to ensure that the entire dose was delivered. The advantage of the low dose stimulation test is that it gives fewer false negatives than the 250mcg dose. However, the additional patients that it identifies tend to be sicker and may not respond to treatment. (Yaegashi M, Boujoukos AJ. The low-dose ACTH test in the ICU: not ready for prime time. Crit Care. 2006; 10(4): 313.)