Reviewer’s report

Title: Glucocorticoid induced adrenal insufficiency is common in steroid treated glomerular diseases - proposed strategy for screening and management

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Reviewer: Richard J Ross

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This manuscript reports a retrospective analysis of the synacthen test in patients treated with glucocorticoids for inflammatory renal disease. The authors found that 46% of patients had evidence of adrenal insufficiency when they were on 5mgs or less of prednisolone. This is an important area of work where there is little evidence to support guidelines for patients for weaning patients off steroids. I have a number of questions:

1. The SMPC for synacthen defines a normal response in a rise of cortisol from baseline by 200 nanomoles per litre at 30 minutes. In practice a lot of units, as in this study, define a normal response a cortisol at 30 minutes greater than a specific level. However in the situation where a patient has been on glucocorticoids their basal cortisol may be lower as the authors found in this study and almost by definition the 30 minute response will probably be lower because there isn't a basal cortisol adding to the 30 minute level? I think it would be instructive and important for the authors to reanalyse their data looking at whether the pass or fail for the synacthen test was different when you took a rising cortisol of 200 nMol/L as a definition of the pass. The danger I see is that they are over diagnosing failed synacthen tests because the basal cortisol is lower.

2. Did the authors measure a basal ACTH? It would be very helpful to know whether or not this related at all to the response to synacthen tests as well as whether it was a predictor of failure. In the literature there was some suggestion that when you have had adrenal suppression there is a rise in ACTH and then it settles back into the normal level.

3. The authors gave very little detail about how they managed the patients who failed the synacthen test. Specifically what dose of hydrocortisone was used and how was the synacthen test performed in relation to the last dose of hydrocortisone and was the hydrocortisone dose weaned before repeating the synacthen test?

4. Although there were a small number of patients on steroid inhalers were these stopped on the day of the synacthen test? It would be important to state as certainly this could suppress the morning cortisol.

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