

What's the best approach to peri-operative cortisol assessment & steroid replacement in patients undergoing transphenoidal pituitary surgery?



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Background: There is considerable variation in the peri-operative management of glucocorticoid replacement in patients undergoing pituitary surgery. We evaluated the safety and effectiveness of the protocol followed in Aberdeen (UK)

Aim: To evaluate the safety of using pre-operative short Synacthen test (SST) or basal cortisol levels to guide peri- and post-operative steroid replacement in patients undergoing transphenoidal surgery.

Methods: We evaluated 30 patients who underwent pituitary surgery for pituitary adenoma in Aberdeen (2013-2014), excluding those with Cushing's disease.

We followed our local peri-operative steroid protocol based on pre-operative SST (ITT) and basal cortisol results:

Peri-operative hydrocortisone was given if basal cortisol <450nmol/L, peak cortisol with SST <550nmol/L or steroid status was unknown.

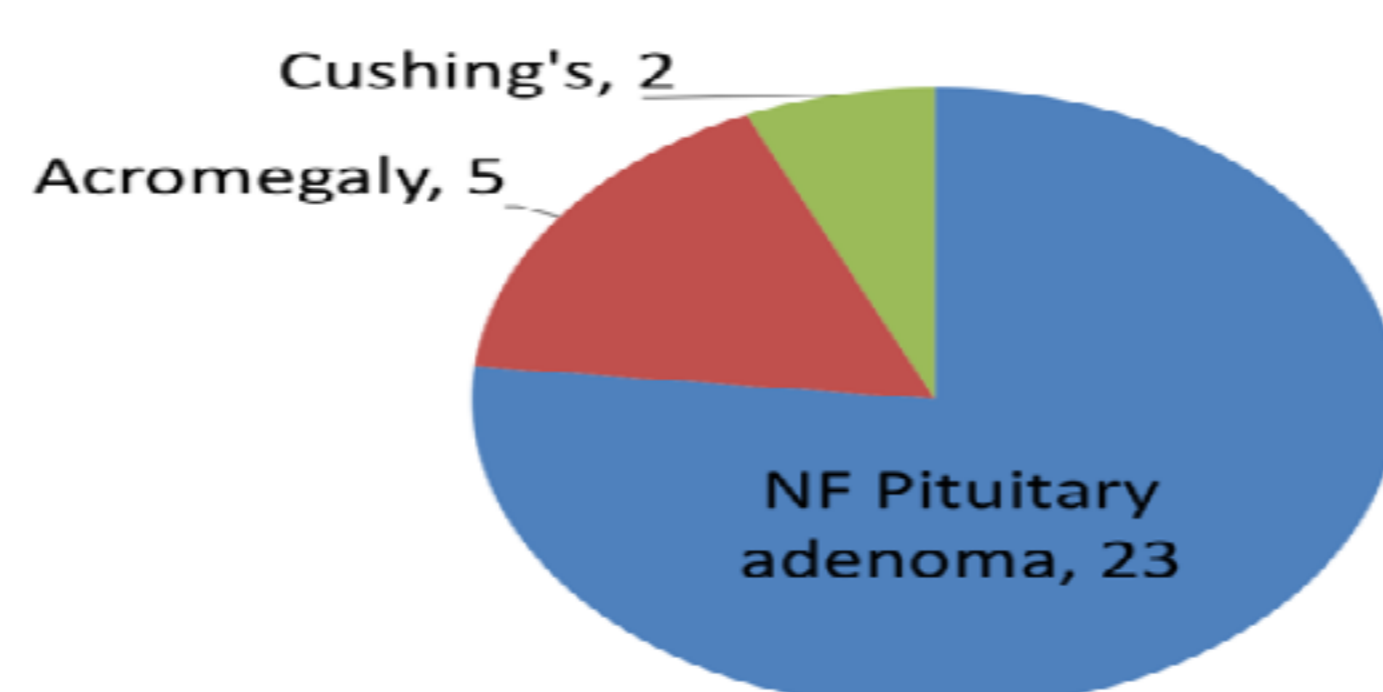
Patients not receiving peri-operative hydrocortisone had serum cortisol checked on a daily basis (at 8-9am) for 3-5 days.

Data were gathered from paper notes and electronic records concerning peri-operative, immediate post-op and 6-8 week post-op cortisol assessment and management.

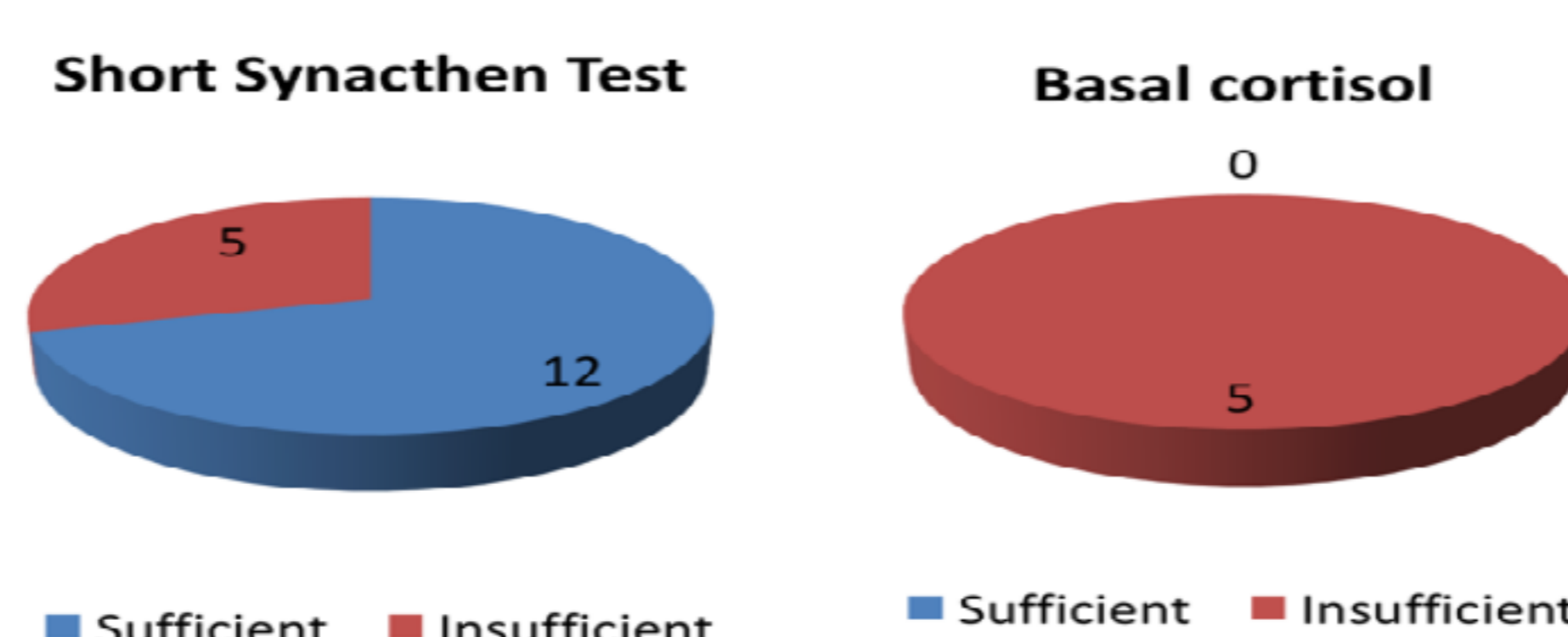
Reference: Pereira O & Bevan JS. Preoperative assessment for pituitary surgery. *Pituitary* (2008), **11**(4): 347-51
Contact: adnan.tariq@nhs.net

Results:

1 Type of Pituitary adenoma (n=30)



2 Results of pre-operative evaluation (n=22)



3 Results of pre-operative evaluation (n=28)

- Sufficient Group (n=12)
- Insufficient Group (n=12):
 - Insufficient after SST: 5
 - Clearly Insufficient after basal cortisol (< 100 nmol/L): 1
 - Insufficient after basal cortisol: 4
 - Unknown : 2 (assumed insufficient)
- Already on steroids (n=4)

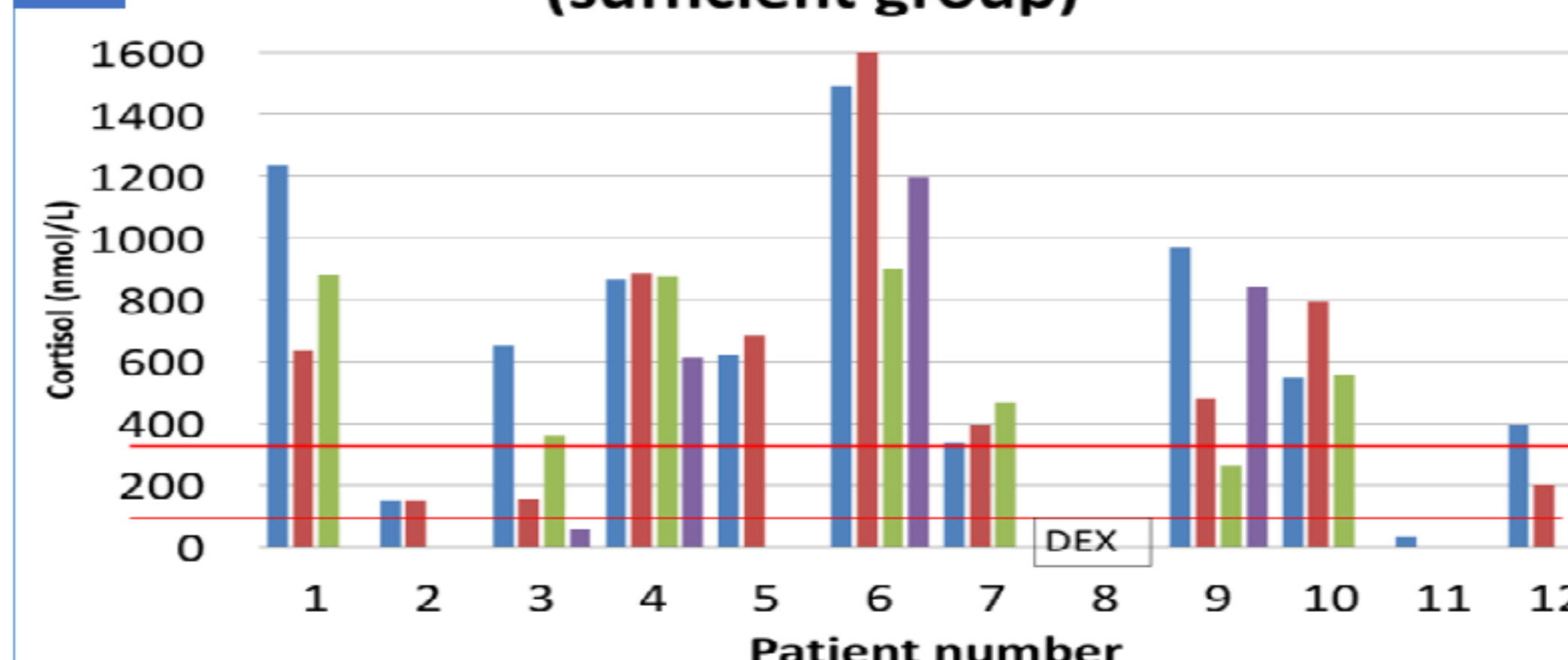
4 Immediate steroid management post-op

- Insufficient Group (n=12):
 - Insufficient after SST: 5 → All continued on steroid replacement
 - Clearly Insufficient after basal cortisol: 1 → All continued on steroid replacement
 - Insufficient after basal cortisol: 4 → 1 continued on steroid replacement; 2 = sufficient; 1 = insufficient, On post-op early morning cortisol monitoring
 - Unknown : 2 (assumed insufficient) → 1 = sufficient after steroid stopped 48 hrs post op and monitored early morning cortisol; 1 = Insufficient on clinical grounds
- Already on steroids (n=4):
 - All continued on steroid replacement

5 Immediate steroid management post-op - on monitoring of early morning cortisol for 3-5 days

- Sufficient Group (n=12):
 - Steroid sufficient: 7
 - Steroid insufficient: 4
 - 1 patient received dexamethasone post surgery by neurosurgeons

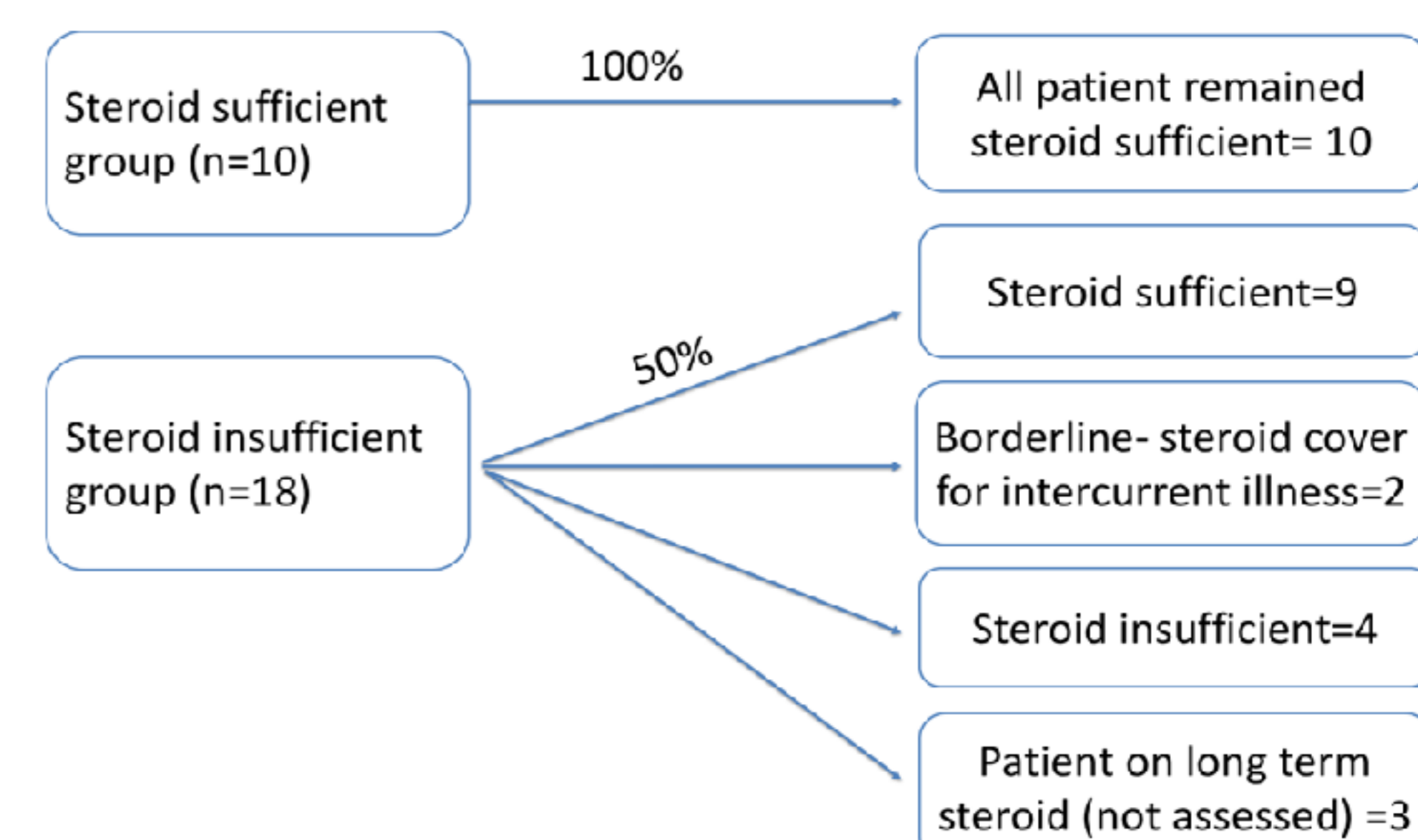
6 Early morning post-operative cortisol levels (sufficient group)



7 Immediate post-op results (all 28)

- Steroid sufficient: 10
- Steroid insufficient: 18

8 Results of Post-op review with SST (typically 6 weeks)



Conclusions:

1. Short Synacthen test is helpful in the assessment of pre-operative cortisol status.
2. If SST is not available, basal cortisol can be used but a relatively high safety bar is advisable (450nmol/L).
3. Early morning cortisol monitoring is useful in post-op patients deemed steroid sufficient pre-operatively and also in patients where cortisol has been stopped for 48 hours post-surgery.
4. All patients discharged without cortisol replacement post-operatively remained steroid sufficient at 6-8 week assessment (100% safety).
5. Fifty-percent of patients given temporary steroid replacement post-surgery were able to discontinue replacement after the 6-8 week assessment.