Incidence of secondary adrenal suppression after prolonged use of Glucocorticoid therapy for children with inflammatory bowel disease

V. Chatzidaki, R. Renji Chungath, S. Tamhne, M. Auth, F. Cameron, M. Velayudhan Nair, , J.H. Cheng, S. Allen, E. Renji , J. Blair

Alder Hey Children's NHS Foundation Trust

Introduction

Glucocorticoids (GCs) are used in all forms of paediatric inflammatory bowel disease (IBD). Prolonged GC treatment may suppress the hypothalamic-pituitary-adrenal (HPA) axis causing secondary adrenal suppression (SAS), necessitating the use of hydrocortisone for replacement (1).

The incidence and severity of SAS is poorly predictable and may be related to both the cumulative dose of GCs, but also to individual factors. Standard and low dose short Synacthen tests (SST, LDSST) are used to assess recovery of the HPA axis following GCs course (2).

Aim

To report:

- the incidence of SAS following GC treatment for IBD in our center
- the time to HPA axis recovery in patients with SAS
- risk factors for SAS

Patients and Methods

33 children with IBD (19M, 10-18 years) previously treated with GCs, who had been investigated for SAS from 01/01/2017 and 30/10/2020 in view of exposure to GCs for >12 weeks or for previous extended GC course(s). 23/33 were tested with standard tests for adrenal suppression, the remaining 10/33 were excluded.

Baseline information including age, sex, growth parameters, IBD type and duration were collected and the subsequent clinic course of the patients were reviewed.

GC courses that suppressed the HPA axis were compared with those that didn't for their length, regimen of CS, previous steroid exposure and timing of HPA recovery assessment.

Results

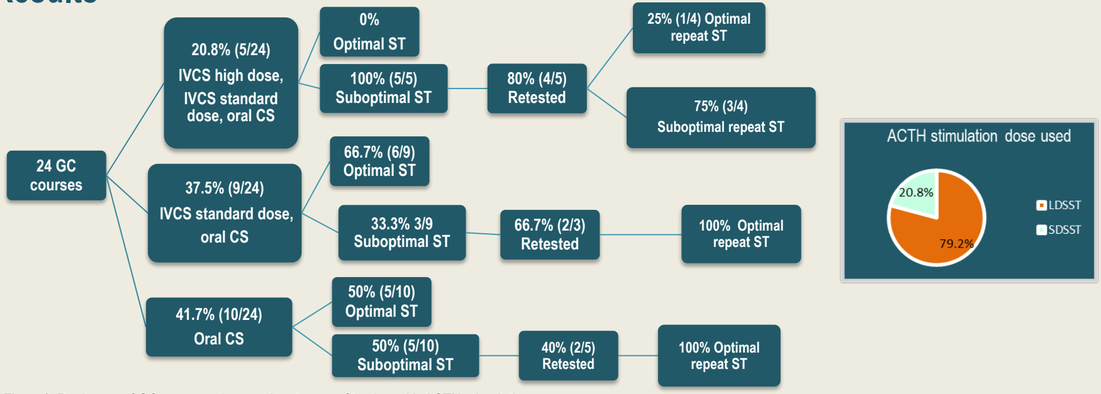
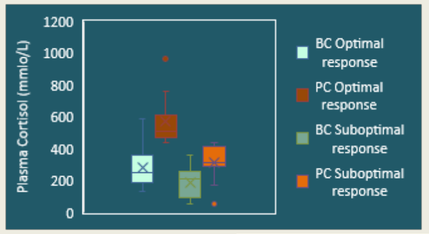


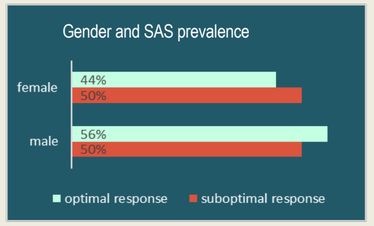
Figure1: Regimens of GC courses given and outcome of testing with ACTH stimulation

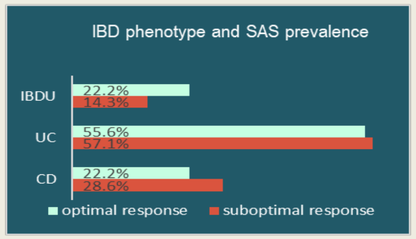
Incidence and risk factors of Secondary Adrenal Suppression

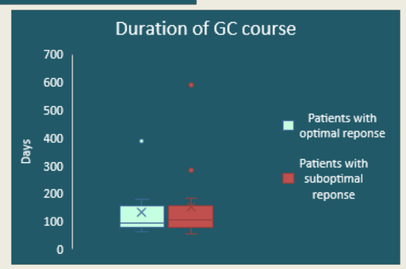
- ✓ 14/23 (60.9%) children had suboptimal Synacthen test.
- ✓ 8/14 were retested in the study period, 5/8(62.5%) recovered HPA axis function in a mean period of 6.83±SD2.4 months and 3/8 remained suppressed after a mean period of 4.6±SD2.7 months.
- ✓ 5/5 (100%) who had high dose IV Methylprednisolone had HPA suppressed on first testing and 3/5 (60%) remained suppressed on retesting.
- ✓ 1/5 (20%) of the children who received high-dose IV GCs required colectomy vs 5/9 (55.6%) of those who had only standard-dose IV GCs.

Cortisol levels









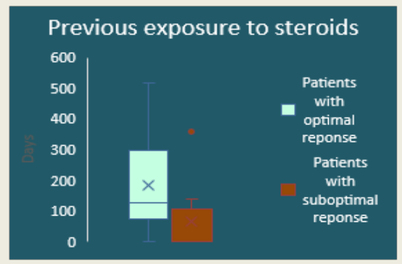


Figure 2: Graphs of bivariate analyses

Conclusions

- ➢ SAS was detected in 60.9% of our IBD patients who were tested after GC courses.
- ➢ Secondary adrenal suppression resolved in 62.5% of the patients after a mean period of 6 months.
- ➢ The incidence of adrenal suppression was not significantly associated with patient characteristics, disease phenotype or duration.
- ➢ Factors related to the GC course such as the duration of treatment and the use of high dose of intravenous GCs, may influence the risk of SAS.

Recommendations

- ➢ LDSST and SDSST should be used for the assessment of HPA axis recovery after a prolonged GC course and after the use of high dose IV Methylprednisolone.
- ➢ Although the recovery of the HPA axis is poorly predictable, a mean period of 6 months is advised before retesting.
- ➢ The risk of secondary adrenal suppression after the use of longer GC courses or high dose IV GCs needs to be weighted against the risk for medical salvage therapy or colectomy (3).

References

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