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Perioperative Care of Congenital Adrenal Hyperplasia

Incongruencies of Practices among Canadian Specialists

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Introduction

- Congenital Adrenal Hyperplasia (CAH) is the most common cause of primary adrenal insufficiency in children.
- Current Endocrine Society guidelines advocate for the use of perioperative supraphysiologic glucocorticoids for children undergoing general anesthesia or surgery[1].
- Problem: We perceived a difference in practice patterns amongst pediatric subspecialists which prompted an assessment of perioperative glucocorticoid administration in Canadian centres.

Methods

- Following REB approval, an electronic cross-sectional survey was sent to Canadian subspecialists using Canadian Pediatric Anesthesia Society (CPAS) and Canadian Pediatric Endocrine Group (CPEG) member email lists (~300 and 85 recipients, respectively)
- Self-reported practice patterns and responses to select clinical scenarios were assessed.

Results

- Less than half of anesthesiologists reported they would provide stress dose steroids for patients undergoing cystoscopy while a clear majority of pediatric endocrinologists reported they would recommend stress administration (45% vs 92% respectively, p<0.0001).
- Over half of endocrinologists (57%) reported to recommend stress dosing regardless of CAH severity or type of procedure being performed.
- Twenty-one percent of anesthesiologists reported they would not provide stress dose steroids for patients undergoing laparotomy.
- Pediatric endocrinologists reported they were more likely to refer to guidelines for management of stress dose steroids (84% vs 51%, p<0.001), with 68% of endocrinologists who used guidelines reporting to use locally established institution specific guidelines.
- Themes emerged in written responses suggesting anesthetists were of the opinion that current guideline recommendations led to overtreatment with glucocorticoids, while endocrinologists believed general-anesthesia itself warrants stress-dose steroids.

Results

- A total of 86 responses were received; 49 anesthesiologists (estimated 16% response rate) and 37 pediatric endocrinologists (estimated 43% response rate).

Table 1. Overall frequencies and comparison of characteristics between anesthesiologists and endocrinologists

Variable, n (%)	Combined (N=86)	**Anesthesiologists** (n=49, 57%)	**Endocrinologists** (n=37, 43%)	P-value*
Age				
25-35 years	10 (11.6)	1 (2.0)	9 (24.3)	
36-50 years	41 (47.7)	23 (46.9)	18 (48.7)	**0.002**
>50 years	35 (40.7)	25 (51.0)	10 (27.0)	
Sex				
Male	39 (46.4)	30 (63.8)	9 (24.3)	**0.0003**
Female	45 (53.6)	17 (36.2)	28 (75.7)	
Practice type				
University/ teaching	76 (88.4)	42 (85.7)	34 (91.9)	0.50
Other	10 (11.6)	7 (14.3)	3 (8.1)	
Years in practice				
< 5	13 (15.9)	0	13 (39.4)	
5 – 10	17 (20.7)	12 (24.5)	5 (15.1)	**<0.0001**
11 – 15	10 (12.2)	7 (14.3)	3 (9.1)	
>15	42 (51.2)	30 (61.2)	12 (36.4)	
Congenital adrenal hyperplasia in practice				
Administer stress dose steroids for cystoscopy/minor surgery?				
Yes	55 (65.5)	21 (44.7)	34 (91.9)	**<0.0001**
No	29 (34.5)	26 (55.3)	3 (8.1)	
Concerned about repeated single high dose steroids?				
Yes	22 (26.2)	17 (36.2)	5 (13.5)	**0.019**
No	62 (73.8)	30 (63.8)	32 (86.5)	
Consult opposite specialty?				
Always	20 (23.3)	14 (28.6)	6 (16.2)	0.16
Frequently	18 (20.9)	12 (24.5)	6 (16.2)	
Occasionally	25 (29.1)	14 (28.6)	11 (29.7)	
Never	23 (26.7)	9 (18.4)	14 (37.8)	
See endocrinology before surgery?				
Sometimes	8 (9.5)	5 (10.6)	3 (8.1)	0.99
Yes	76 (90.5)	42 (89.4)	34 (91.9)	
Follow guidelines for stress dose decision?				
Yes	56 (65.1)	25 (51.0)	31 (83.8)†	**0.001**
No	30 (34.9)	24 (49.0)	6 (16.2)	

*Comparisons by Chi-square test or Fisher's exact test. †Guideline type: Local centre guidelines n=21 (67.7%), published clinical practice guidelines n=7 (22.6%), other n = 3 (9.7%). Frequencies in variable categories do not always sum the totals because of missing data.

Discussion

- Current guidelines[1] suggest the use of perioperative supraphysiologic steroids for all patients with primary adrenal insufficiency, with a graded dose depending on degree of surgical stress, in order to pre-emptively prevent clinical deterioration in unforeseen circumstances.
- Our data have identified a clear difference in self-reported approach to perioperative stress dose steroids between Canadian anesthesiologists and pediatric endocrinologists. It is unclear whether this incongruency is present in other countries or extends to adult practices.

Conclusion

- Further dialogue among both pediatric and adult, and endocrine and anesthesia specialists is required to address this apparent discrepancy in practice patterns.
- Future well-designed research is paramount to provide evidence-based practice recommendations for perioperative management of patients with primary adrenal insufficiency.

References

1. Bornstein SR, Allolio B, Arlt W, Barthel A, Don-Wauchope A, Hammer GD, et al. Diagnosis and Treatment of Primary Adrenal Insufficiency: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2016 Feb 1;101(2):364–89.

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