CPSP
CANADIAN PAEDIATRIC SURVEILLANCE PROGRAM

One-time survey results

Patients with asymptomatic adrenal suppression

March 2010

Glucocorticoid (GC) therapy is extremely effective for the treatment of several paediatric diseases. Among the potential side effects is adrenal suppression (AS) which results in an inability to produce adequate amounts of cortisol – a critical hormone during physiologic stress. Children with AS may be asymptomatic, have non-specific signs and symptoms (e.g., fatigue, nausea, poor growth) or be critically ill (i.e., adrenal crisis), Adrenal crisis and its associated morbidity and mortality can be prevented by recognizing children at risk for AS and administering adequate doses of GCs during times of stress. Children with asymptomatic AS can only be diagnosed as a result of screening. Official guidelines for AS screening have yet to be developed. Consequently, screening practices are highly variable between physicians and centres.

Before launching a two-year surveillance study to estimate the incidence, clinical features, and burden of illness of symptomatic AS in the Canadian paediatric population, participants were surveyed to assess their screening practices for AS and their recognition of asymptomatic cases. The objectives of the survey were to: (1) collect data on recognized cases of asymptomatic AS and current screening practices to detect these cases, (2) estimate the prevalence of Canadian children being treated with GCs, and (3) measure the educational impact of the surveillance study by comparing results with a subsequent post-study survey. Identifying and treating asymptomatic patients *before* they develop symptoms can lead to reduced morbidity in this population.

The one-time pre-study survey was sent to all 2,548 CPSP participants in March 2010. Eight hundred and twenty paediatricians responded (32% response rate). Eighty-four percent of respondents have seen children/youth treated with GCs within the last month. Of those who reported seeing GC-treated children, 86 (13%) saw less than 5, 155 (23%) saw 5-10, 198 (30%) saw 11 to 20, 145 (22%) saw 21 to 50, 53 (8%) saw 51-100, and 25 (4%) saw more than 100. Eighty (10%) paediatricians routinely screen patients on GCs for AS. Fifty-one (6%) paediatricians reported having a screening policy for AS in their office/centre.

Ninety-six (12%) paediatricians reported seeing at least one case of asymptomatic AS over the past year. For these children, the underlying condition requiring GC treatment was asthma in 63 cases (50%), inflammatory bowel disease in 20 (16%), malignancy in 23 (18%), nephrotic syndrome in 9 (7%), and a rheumatologic condition in 12 (9%). Diagnosis was made by a first morning cortisol in 71 cases (74%), standard-dose ACTH stimulation test in 30 (31%), low-dose ACTH stimulation test in 20 (21%), random cortisol in 14 (15%), 24-hour urinary cortisol in 4 (4%), and "other" in 13 (14%).

Survey results suggest that many children in Canada are being treated with GCs for various conditions. There is a wide variability in screening practices for AS among physicians and centres. While the low-dose ACTH stimulation test is now considered to be the best test for the diagnosis of AS by most endocrinologists, a first morning (08:00) cortisol level is more practical and frequently used as an alternative. The relative percentage of children being screened for asymptomatic AS is minimal compared with those being treated with GCs. Hopefully, with increased awareness, more children should be diagnosed with and treated for asymptomatic AS. Study results might also inform on the development of clinical practice guidelines for the screening of AS.

Principal investigators

Alexandra Ahmet, MD, FRCPC, Division of Endocrinology and Metabolism, Children's Hospital of Eastern Ontario, Ottawa ON K1H 8L1; tel.: 613-737-7600, ext. 3357; fax: 613-738-4236; aahmet@cheo.on.ca

Ellen Goldbloom, MD, FRCPC, Division of Endocrinology and Metabolism, Children's Hospital of Eastern Ontario, Ottawa ON K1H 8L1; tel.: 613-737-7600, ext. 2842; fax: 613-738-4236; egoldbloom@cheo.on.ca