Different Potent Glucocorticoids, Different Routes of Exposure but The Same Result: Iatrogenic Cushing’s syndrome and Adrenal Insufficiency

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Abstract

Cushing’s syndrome (CS) is very rare in childhood and the most common cause is the high doses of synthetic glucocorticoids administered to children for treatment or misuse of it. Potent glucocorticoids (GC) cause iatrogenic CS (ICS) due to suppress hypothalamo-hypophyseal-adrenal (HPA) axis and later even adrenal insufficiency (AI). The aim of this study is to review the clinical and laboratory findings of patients with ICS and to review other side effects.

Methods

In this retrospective study, all of data is obtained from patients’ medical records. The 14 (9 girls, 5 boys) aged between 0.19 and 11.89 years, were enrolled to the study. All patients had been given a high dose of moderate to high potent glucocorticoids by oral and / or skin. The mother of case 12 had used an ointment to prevent diaper dermatitis from birth on which she thought to have contained panthenol. The manufacturer stated that there was no glucocorticoid in the cream. The possibility of AI was investigated by low-dose ACTH test. Hydrocortisone was started in the patients with adrenal failure. A 24-hour urine sample and a morning fasting blood sample of the Case 12 were obtained before treatment was initiated. Blood steroid analyze was performed. Also, urine steroid profile was performed at University of Birmingham College of Medical and Dental Sciences.

Results

A clinical summary of the patients is given in Table. The duration of exposure ranged from 1 to 72 months. Ten patients had been given topical GC such as clobetasol-propionate, diflucortolone-valerate, metiprednisolone-acetone and betamethasone exposure, rest of them had been administered oral exposure such as metilprednisol and prednisolone. One infant (Case 12) used a cream for diaper dermatitis that was claimed to be because of panthenol. Infant’s blood and urine steroid analysis revealed all the endogenous steroids were suppressed (Figure). At the admission of the 14, 11 had AI and two had hypercalcemia and nephrocalcinosis. Of 11 patients, ultrasonography revealed five patients have hepatosplenomegaly. The HPA axis returned to normal at a median of 60(160) days.

Conclusion:

In this series, 70% of the patients with life-threatening AI and two patients with hypercalcemia were detected. These results pointed out potent GCs cause serious side effects especially in infants. Physicians should be aware of the possible misuse of GCs and products that have the possibility of containing synthetic glucocorticoids since parents are not informed of the use of these drugs side effects.