CLIPPINGS

Theme: Endocrinology

Effect of ketogenic diet on thyroid function (*J Pediatr Endocrinol Metab. 2017, Jan 11- Epub ahead of print*)

Ketogenic diet is used for treatment in intractable epilepsy that mimics the metabolic state of starvation. Thyroid function was evaluated in 120 patients [mean (SD) age 7.3 (4.3) y] who had been receiving ketogenic diet for at least one year for drug-resistant epilepsy. Thyroid function was measured at baseline and after 1, 3, 6 and 12 months. Twenty (16.7%) patients developed hypothyroidism during the study period. Baseline Thyroid-stimulating hormone elevation (OR 26.9; 95% CI 6.48,111) and female gender (OR 3.69; 95% CI 1.05,12.9) were two independent risk factors that predicted hypothyroidism. The authors emphasized the importance to screen for thyroid function in patients of epilepsy receiving ketogenic diet.

Salivary testosterone measurement in infant boys (*Horm Res Pediatr. 2017 Jan 10- Epub ahead of print*)

Serum testosterone levels are higher during postnatal months in boys due to transient activation of hypothalamo-pituitary axis. The authors measured the total serum testosterone and free testosterone levels in saliva using liquid chromatography-tandem mass spectrometry in 30 infant boys (age 1–6 mo) and in 12 adolescents (age 11–17 y). The authors found high levels of total serum testosterone with low salivary free testosterone in infants. In contrast, salivary free testosterone was higher in relation to total serum testosterone during adolescence. The authors concluded the role of measurement of salivary testosterone and provided reference data for salivary testosterone in infants.

Radioactive iodine *versus* thyroidectomy for Pediatric Graves' disease (*J Pediatr Endocrinol Metab. 2016;28:797-804*)

Treatment of pediatric Graves' disease with antithyroid drugs results in low remission and high relapse rates. There is a dilemma regarding further mode of therapy to choose between radioiodine (RAI) and surgery. This retrospective analysis was done to investigate the role of RAI as a first line therapy. Thirteen children (median age 13.7 y) with Graves' disease were analyzed. Eight out of 12 patients, who had completed two year course of carbimazole, had relapsed after a mean duration of 0.82 years (range 0.08–1.42 years). Three of them underwent RAI. The authors have proposed few prognostic factors which predict low likelihood of remission with antithyroid drugs – like younger age, non-Caucasian ethnicity, and severe clinical and/or biochemical markers of hyperthyroidism. Such patients should be considered for RAI as the first choice of therapy.

Fluid resuscitation in diabetic ketoacidosis (*J Emerg Med. 2016;50:551-9*)

Fluid resuscitation remains the mainstay in correction of metabolic abnormalities in diabetic ketoacidosis (DKA) in children with Type 1 diabetes. The optimal rate and volume of fluid resuscitation is debatable. In this randomized controlled trial, 50 patients with DKA were randomized (25 in each arm) to receive intravenous (IV) fluids at low volume (10 mL/kg bolus + 1.25×maintenance rate) or high volume (20 mL/kg bolus + 1.5×maintenance rate). The primary outcome was time to metabolic normalization, which was significantly faster in the higher-volume infusion group compared to the low-volume infusion group (hazard ratio 2.0; 95% CI 1.0,3.9; P=0.04). Patients in higher-volume group also had greater normalization of blood pH than serum bicarbonate, without any differences in length of hospitalization.

Dose regimes of vitamin D in treating vitamin D deficiency in Hispanic adolescents (*J Pediatr. 2016;170:266-72*)

The optimum dosage and frequency of vitamin D for treating vitamin D deficiency (VDD) in adolescents is still controversial. In this randomized controlled trial, 183 adolescents with vitamin D deficiency (mean serum 25(OH)D 13.7 ng/mL) were randomized to receive cholecalciferol as 50,000 IU/wk, 5000 IU/d, or 1000 IU/d for 8 weeks. Maximum increase in serum 25(OH)D was seen in first group (P<0.001). Total 72%, 56%, and 2% subjects achieved vitamin D sufficiency (>30 ng/mL), respectively across these three groups. The mean increase in serum 25(OH)D was less in obese participants than normal weight participants. The authors recommend minimum vitamin D supplementation dose as 5000 IU/d to treat VDD.

Impact of glucocorticoids on hormonal profile in children with congenital adrenal hyperplasia (*Int J Pediatr Endocrinol. 2016;2016:17*)

The impact of different glucocorticoids on growth and adrenal axis in children with congenital adrenal hyperplasia (CAH) was investigated in this study. Nine prepubertal children (mean age 8.2 y) with CAH were assigned to receive three sequential six week courses of oral hydrocortisone (HC), prednisolone (PDN) and dexamethasone (DEX) in random order, while continuing their mineralocorticoid dose. The mean ACTH and 17-hydroxy progesterone levels were significantly lower with DEX than with HC or PDN (P<0.001). Serum levels of 17- hydroxy progesterone was significantly lower with HC than PDN. Both IGF-1 levels and growth hormone levels were comparable across all three groups (P>0.05). Single nucleotide polymorphism analysis of genes in the glucocorticoid pathway revealed significant differences in response to drugs between participants.

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