

plaints in the period from 2013 to 2017 aged 1 to 91 were examined.

Fatty acids within the red blood cell membranes were analyzed as methyl ethers after transesterification with sodium methylate using GC-MS followed by omega-3 index calculation.

#### RESULTS:

Deficiency of omega-3 PUFAs was found in 68.5% of patients. The most severe deficiency was noted in children and adolescents aged 0 to 17 years (in girls to a greater extent). In age groups of 18–44 and 45–59 years, the prevalence of severe (<4%) and moderate (4–8%) deficiency was comparable in males and females: among 18–44-year-old men severe deficiency was noted in 5.6%, moderate – in 29.4%, at the age of 45–59 years – in 7 and 23%, respectively; among women – 6.4, 24.4, 8.4 and 20%, respectively. In the age group of 60–74 years, prevalence of severe deficiency was significantly higher in men, who had severe deficiency in 9.2% of cases, whereas in women of the same age it was found only in 4.8% of cases, the prevalence of moderate deficiency is 23 and 23.8%, respectively.

#### CONCLUSIONS:

Such high prevalence of severe omega-3 PUFA deficiency in girls under 17 is likely due to girls' and their parents' concerns about weight, diet and veganism, and requires the inclusion of omega-3 index analysis in adolescent girls' screening. Thus, during the most important period – the period of puberty – 25% of girls have metabolic and hypoxic disorders due to deficiency of omega-3 PUFA and are at risk of not only diseases associated with metabolic disorders, but also reproductive disorders (infertility, miscarriage, fetal malformations). The obtained data is indicative of the necessity to choose dosages of omega-3 PUFAs, considering not only the patients age, but also their gender.

## Neuroendocrinology and Pituitary PITUITARY TUMORS II

### *AgRP and Food Cravings Decrease with Treatment of Cushing's Disease*

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#### MON-321

Cushing's disease (CD) is characterized by chronic exposure to excess glucocorticoids due to an ACTH-producing tumor. Obesity is a prominent feature of CD, although the mechanisms of weight gain have not been completely elucidated. In some patients, obesity persists despite appropriate medical or surgical treatment of CD and normalization of cortisol levels (1). Few studies have followed patients prospectively to understand the effect of CD

remission and cortisol normalization on appetite and body weight. Previous studies have not shown a correlation between appetite or food cravings and circulating total peptide YY (PYY), ghrelin, or leptin concentrations, leading to interest in other hormones which may regulate appetite in CD (2). One of these is the neuropeptide Agouti-related protein (AgRP). AgRP is known to promote appetite and decrease energy expenditure by acting as a melanocortin antagonist at the level of the hypothalamus. Plasma AgRP may be elevated in patients with active CD and decreases with normalization of cortisol levels (3). We sought to determine if AgRP may play a role in regulating appetite or food cravings in CD. Plasma AgRP was measured before and prospectively after treatment in 19 patients with CD. Patients completed surveys on appetite and food cravings at these same time points. As expected, AgRP significantly decreased following treatment for CD, with mean AgRP before treatment 128.72 pg/mL (SD 55.41) and mean AgRP after treatment 75.23 pg/mL (SD 23.46). Using a paired t-test, the mean difference of 53.5 pg/mL was significant ( $p=0.0006$ ). In addition, there were significant decreases in BMI, weight, and waist circumference with CD treatment. We found that plasma AgRP concentrations did not correlate with an 8-question visual analogue scale (VAS) used to assess hunger and satiety. However, treatment of CD significantly reduced Trait Food Craving Questionnaire scores in parallel with circulating AgRP levels using a one-way analysis of variance ( $p=0.004$ ). Our data suggest that AgRP may play a role in food craving, rather than appetite, in patients with CD. Further research may clarify the relationship between AgRP and food cravings in CD patients before and after treatment. References:

1. Geer et al. *Endocrinol Metab Clin North Am.* 2014; 43: 75-102.

Geer et al. *Pituitary.* 2016; 19: 117-126. Page-Wilson et al, *J Clin Endocrinol Metab.* 2019; 104 (3): 961-969.

## Thyroid

### BENIGN THYROID DISEASE AND HEALTH DISPARITIES IN THYROID II

#### *Spontaneous Changes in TSH Levels After Thyroidectomy During Long-Term Follow-Up*

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#### SUN-420

**Background.** Spontaneous serum TSH variations during levothyroxine replacement therapy and multiple dose changes in athyreotic patients seem to be frequent in clinical practice.

**Aim.** To describe the rate and extent of spontaneous serum TSH variations in patients after total thyroidectomy for differentiated thyroid cancer (DTC) in real-life practice, and the number of resulting levothyroxine (LT4) dose adjustments.

**Methods.** Data of DTC patients were prospectively collected at a single referral center between January 2005 and May 2019. TSH and fT4 serum levels, LT4 dose and formulation, and concomitant medications were recorded