

3. Our report describes the second case of galactorrhea in a male-to-female transsexual in the world. The first case was reported by *R. Flückiger et al.* in 1983.

4. These findings indicate that the mechanism of lactation is independent of chromosomal sex. The possibility of drug-induced galactorrhea in males does exist.

KEYWORDS: prolactinoma, cabergoline, bromocriptine intolerance, spontaneous pregnancy, drug-induced galactorrhea, transgender, lactation.

★ ★ ★

ELEVATED T4 AND TSH, APPROACH TO DIFFERENTIAL DIAGNOSIS

Elena Przhialkovskaya

Endocrinology Research Centre, Moscow, Russia

The ‘inappropriate secretion of thyrotropin (TSH)’ syndrome includes two types of central hyperthyroidism: TSH-secreting pituitary adenomas (TSH-omas) and thyroid hormone action resistance (RTH). Both types are characterized by high levels of FT4 and FT3 in the presence of unsuppressed TSH concentrations in contrast to primary hyperthyroidism, where TSH levels are always undetectable. Failure to diagnose these different disorders may result in improper thyroid ablation in patients with TSH-omas or unnecessary pituitary surgery in patients with RTH. Several diagnostic steps should be carried out to differentiate the two types of central hyperthyroidism: laboratory evaluation (alpha-subunit of glycoprotein pituitary hormones (α -GSU), sex hormone-binding globulin, C-terminal telopeptide (CTx); MRI visualization; functional tests should be performed (T3 suppression test and thyrotropin releasing hormone (TRH) stimulation test); genetic analysis. The presence of pituitary lesions on an MRI scan strongly supports the diagnosis of TSH-oma. However, the usefulness of such imaging is limited by the known prevalence of pituitary incidentalomas in healthy subjects. A partial inhibition of TSH secretion after T3 suppression test is seen only in RTH patients. The TSH response to TRH stimulation is usually preserved in RTH patients. The finding of a similar thyroid biochemical phenotype in other first-degree relatives is highly suggestive of RTH. Mutations in the thyroid hormone receptor beta gene are identified in ~ 75–80% of RTH. High α -GSU concentrations and/or high α -GSU/TSH molar ratios are typically present in patients with TSH-omas. Circulating sex hormone-binding globulin levels are usually high in patients with TSH-omas, whilst being of normal level in RTH. Chronic administration of long-acting somatostatin analogs caused a marked decrease of free T4 and free T3 levels in nearly all patients with TSH-omas, while patients with RTH did not respond at all. Echocardiologic examination was performed, no valve pathology was found.

KEYWORDS: TSH-secreting pituitary adenoma, thyroid hormone action resistance, differential diagnosis, somatostatin.

★ ★ ★

DIABETES INSIPIDUS

Ekaterina Pigarova

Endocrinology Research Centre, Moscow, Russia

Diabetes insipidus is a disorder that dramatically interferes with a patient’s everyday life due to the need to constantly replenish the fluids lost in increased urination, which comes amid shortage of synthesis, secretion or action of pituitary hormone vasopressin. Differential diagnosis of types of diabetes insipidus in patients with polydipsia-polyuria syndrome is the main difficulty, for a correct diagnosis predetermines the safety and efficacy of further treatment. This session will present current concepts on the etiology, diagnosis and treatment of central diabetes insipidus (CDI). Comparative characteristics of various preparations of desmopressin for the treatment of the central form of the disease will be discussed, and features of the management of selected patient populations with CDI will be taken in consideration: during pregnancy and lactation, pathology of the thirst sensation, after traumatic brain injury and neurosurgery.

KEYWORDS: diabetes insipidus, differential diagnosis, safety, efficacy, treatment.

★ ★ ★

PITUITARY CAUSES OF BONE LOSS

Marek Bolanowski

Wroclaw Medical University, Wroclaw, Poland

Different hormonal disorders can influence bone metabolism and cause secondary osteoporosis. In childhood, pituitary diseases can hamper gaining of proper peak bone mass and skeletal size. In the adult life they can stimulate bone loss by increasing bone resorption and decreasing bone formation. The consequence of these processes are decreased bone mineral density (BMD) and trabecular bone score (TBS), deterioration of bone quality, diminished bone strength and finally increased bone fracture risk. Among pituitary disorders such effects are possible in patients with hyperprolactinemia, Cushing’s disease, acromegaly and hypopituitarism. Hyperprolactinemia increases bone resorption and loss of BMD, there is increased fracture risk in patients with prolactinoma. Hypercortisolism due to Cushing’s disease (ACTH-dependent Cushing’s syndrome) diminishes formation and increases resorption of bone, causing trabecular bone loss and increased fracture risk. Moreover, there are decreased calcium absorption and disturbances in sex steroids secretion. In acromegaly, GH excess stimulates bone formation, but concomitant hyperprolactinemia and hypogonadism caused by pituitary

macroadenoma lead to increase of bone resorption and spinal fractures. In hypopituitarism, disturbances in GH and gonadotropins secretion lead to osteopenia or osteoporosis. There is an increased fracture risk in GHD patients. Sometimes, additional effects of secondary hypogonadism, hyperprolactinemia and GHD are observed in hypopituitarism due to pituitary tumor.

KEYWORDS: pituitary disorders, bone metabolism, disruption, osteoporosis.



MODERN PRINCIPLES OF TREATING OBESITY

Dragan D. Micić

University of Belgrade, Belgrade, Serbia

In the last couple of decades obesity rapidly increased together with obesity related co-morbidities. Comprehensive lifestyle interventions, including nutrition, physical activity and behavioral therapy are the foundation for obesity management. Drug treatment, medical devices or bariatric surgery for obesity are indicated when diet, physical exercise and behavioural methods did not achieve satisfactory results. Pharmacotherapy for obesity is introduced in patients with a body mass index ≥ 30 kg/m² and in patients with a body mass index ≥ 27 kg/m² with co-morbidities. The FDA approved the following drugs for chronic therapy of obesity in the US: orlistat; lorcaserin; phentermine/topiramate; bupropion/naltrexone and liraglutide, while EMEA approved the following drugs for the treatment of obesity in Europe: orlistat; bupropion/naltrexone and liraglutide. Orlistat is a powerful selective inhibitor of pancreas lipase which decreases fat absorption from the gut. Lorcaserin is a selective 5-HT_{2C} receptor agonist. Activation of serotonin-2C receptors in hypothalamus decreases the food intake. Combination of phentermine/topiramate decreases body weight in a way that phentermine suppresses appetite while topiramate affects energy homeostasis. Fixed combination of naltrexone (antagonist for opiate receptors) and bupropion (inhibitor of uptake for dopamine and norepinephrine) has a synergistic effect on appetite decrease and body mass decrease. Liraglutide is a GLP-1 analog which is injected in 3 mg dose daily to decrease hunger and induce fullness in stomach and satiety. Therapeutic efficacy for most of the obesity drugs is assessed by determining body weight decrease by $\geq 5\%$ of initial body weight after three months (for liraglutide $\geq 4\%$ after 16 weeks) and in case of having achieved such a response, therapy is continued. These data suggest the existence of specific responder phenotypes in which the use of adequate anti-obesity therapy could result in a significant decrease of body weight. In the future we can expect that different drug combinations may be used, having different mechanisms in mind which are contributing in the rise of global obesity epidemic. Intra-gastric balloons are a newly developed endoscopic therapy for weight loss. Balloons occu-

py space in the stomach, inducing satiety and decreasing food intake. The implantable weight loss device was approved by FDA in 2015. The device works by interruption of vagus nerve signalling which leads to a delay in gastric emptying, early satiety and reduced hunger. Bariatric surgery is the most effective treatment for severe obesity and its comorbidities. Major clinical procedures are: adjustable gastric banding, vertical sleeve gastrectomy, Roux-en-Y gastric bypass and biliopancreatic diversion.

KEYWORDS: obesity, approved drugs, drug combination, efficacy criteria, intra-gastric balloons.



BARIATRIC SURGERY: THE MESSAGE FROM SURGEON TO ENDOCRINOLOGIST (OR WHAT TO EXPECT FROM DIFFERENT SURGICAL TECHNIQUES)

Yury Yashkov^{1,2,3}

¹Research Center for Obstetrics, Gynecology and Perinatology, Moscow, Russia; ²Center of Endosurgery and Lithotripsy, Moscow, Russia; ³Sechenov First Moscow State Medical University, Moscow, Russia

Diabetes mellitus is a chronic disease, 85% of all diabetics suffered from DM2. The expected spreading of DM2, high frequency of complications (nephropathy, retinopathy, polyneuropathy, angiopathy), early disability of patients, high mortality rate dictates a necessity of the effective treatment of DM2, which was called by WHO as a non-infectious epidemic. Bariatric (Metabolic) surgery initially intended for the treatment for severe (morbid) obesity proven to be very effective for the patients suffering from Diabetes Mellitus type 2 (DM2) — well-known obesity-related disease. Moreover, some kinds of metabolic operations were appeared to have «specific action» which means high probability of compensation of DM2 and correction of Hypercholesterolemia independently on weight loss. During the last decade metabolic surgery could extend its opportunities not only for severe obese patients but also for the patients suffering from DM2 with obesity class 1 (BMI 30–35) or even without obesity. The latest cohort of surgically — treated patients with DM2 is of high scientific interest. It is important to select appropriate patients whose prognosis for DM2 compensation would be high. The more obese is patient — the better prognosis of remission of DM2 he (she) has. Non-important factors for the prognosis of compensation of DM2 are: level of fasting glycemia, level of HbA_{1c} preoperatively, kind of hypoglycemic therapy including Insulin. Less optimistic prognosis for compensation of DM2 can be expected in patients with C-Peptide level <1.0 pmol/ml, anamnesis of DM2 >10 years, positive tests for autoimmune antibodies (GAD, beta-cells etc). However, in case of LADA-Diabetes or DM2 with severe impaired beta-cell secretory function metabolic surgery can also be helpful while lowering of doses of Insulin and providing more predictable limited