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Metabolic syndrome: A case report

Metabolic syndrome composed of abdominal obesity, atherogenic dyslipidemia, raised blood pressure, insulin resistance and/or glucose intolerance, proinflammatory state and prothrombotic state is a complex multisystem disorder. It is well known that patients with metabolic syndrome have increased cardiovascular risk and risk of developing diabetes type II. But besides these well known risk states, there are other conditions such as polycystic ovary syndrome, fatty liver, cholesterol gallstones, asthma, sleep disturbances and some forms of cancer associated with a metabolic syndrome. In this case report we will present a patient who developed many of these conditions related to the metabolic syndrome and will highlight the novel efforts regarding to the lifestyle changes, primarily weight loss.

Letter to Editor **Published Date:- 2021-07-31**

Myxedema coma in COVID-19

SARS-CoV-2 infection is associated with thyroid disorders. It has been reported that myxedema coma (MC) can be complicated with COVID-19. COVID-19-related thyroid disorders consist of a broad spectrum of thyroid dysfunction, from thyrotoxicosis to decompensated hypothyroidism. It is possible that both primary and central thyroid disorders are induced by COVID-19 due to systemic inflammatory and immune responses. We experienced two cases in which patients with COVID-19 developed MC with central hypothyroidism. It is likely that MC affected the severity of COVID-19. It is necessary to consider the existence of MC during SARS-CoV-2 infection. We propose the potential mechanisms.

Research Article **Published Date:- 2021-04-07**

Usefulness of salivary cortisol as a marker of secondary adrenal insufficiency in paediatric patients

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Background: The main cause of adrenal insufficiency (AI) in paediatric patients is prolonged treatment with corticosteroids. Determination of plasma cortisol (PC) during ACTH test is the most used adrenal function indicator in clinical practice. However, determination of salivary cortisol (SC), a simple test especially useful in children in order to avoid invasive procedures, can be used as an alternative technique for the diagnosis of adrenal disease.

Methods: A two-year prospective study (January 2014-January 2016) in paediatric patients (2-18 years of age) treated with corticosteroids for more than fifteen days, who were investigated for suspected AI. Low-dose ACTH test was used to determine adrenal function and samples for SC and PC were obtained simultaneously in basal situation and during the test (at 30, 60 and 90 minutes).

Results: 230 samples (118 PC-112 SC) of 30 studies belonging to 20 patients (4 males), mean age 10.93 years ± 3.69 SD. Pearson's correlation coefficient showed a positive correlation between PC and SC ($r = 0.618$, $p < 0.001$). All the studies with some determination of PC higher than 18 ?g/dL (n = 8) had a SC peak higher than 0.61 ?g/dL with a specificity of 66.67% and a sensitivity of 93.94% (ROC analysis).

Conclusion: Measurement of SC is a less invasive, easier and quicker test than PC to measure plasma free cortisol levels. In our study, a SC peak in low-dose ACTH test higher than 0.61 ?g/dL was able to discriminate patients without AI, and proved to be a useful tool in the initial evaluation of children with suspected AI.

Introduction

The activation of the hypothalamic-pituitary-adrenal axis in response to critical illness and the resulting release of cortisol from the adrenal cortex are essential to stress adaptation. Adrenal insufficiency (AI) is described as the inability of adrenal glands to produce an appropriate hormonal secretion not only under stress but also in basal situation. Therefore, a low baseline plasma cortisol (PC) (< 5 ?g/dL) and a poor cortisol response to stimulation with exogenous adrenocorticotropic hormone (peak < 18 ?g/dL) are some of the defining criteria of this condition [1,2]. It is well known that the main cause of AI in paediatric patients is prolonged treatment with exogenous corticosteroids, which is an iatrogenic cause derived from the increasing complexity of paediatric pathologies and the increased use of prolonged high-dose corticosteroid therapy.

In clinical practice, adrenal function is usually assessed by the total PC (determined by low-dose ACTH test). This implies the placement of a vascular access which is often a traumatic experience for children.

PC includes protein-bound fraction and serum-free cortisol. The latter constitutes the biologically active form of the hormone and is responsible for glucocorticoid activity on peripheral organs. Most of the circulating cortisol is bound to plasma proteins (over 90%), such as cortisol-binding globulin (CBG) and albumin, whereas only about 10% of circulating cortisol is free. Hence, the measurement of plasma-free cortisol level has been considered more representative of adrenal function (especially in critically ill adults and children) [1,2], because some conditions, such as hypoalbuminaemia or hypoproteinaemia (frequent in critically ill patients or in patients with cirrhosis), may lead to misinterpretation of adrenal function with an overestimation of the prevalence of AI. But the direct measurement of free PC is a laboratory-dependent and time-consuming procedure that is not available for routine use. Salivary cortisol (SC) is one of the several indirect methods available to determine free PC [3], as SC levels accurately reflect free PC [4] even in cases of hypoalbuminaemia or CBG abnormality [1,5]. For this reason, in the last years, this technique (SC) has been introduced as a non-invasive tool in the diagnosis of adrenal cortical disorders, for its simplicity and applicability in the paediatric population. However, few studies to date have evaluated the usefulness of SC as a diagnostic method in children with AI. No interactions between exogenous corticoids and SC have been described [6].

The aim of the present study was to assess the usefulness of determining salivary cortisol levels as a diagnostic tool in children with suspected secondary iatrogenic AI.

Research Article **Published Date:- 2021-03-01**

Evaluation of endothelial function in obese children and adolescents

Introduction: Obesity defined as increased fatty mass is progressively rising in recently, even though its affects begins to all systems in childhood and adolescence periods, the most important morbidity and mortality reason of obesity is its effects on the cardiovascular system. Researches point out endothelial dysfunction and atherosclerosis as the reason of the cardiovascular system disease in obesity. The studies conducted on childhood period related to this subject are highly limited and the results of these are also controversial. Therefore in our study the effects of obesity on endothelial functions in children and adolescents was assessed by flow mediated dilation (FMD) method. In addition to that, effects of epidemiological, biochemical, hormonal and clinical features of cases to FMD were investigated.

Material and method: A total number of 104 cases were cover in this study. Obese group (group 1) was consisted of 59 children whose body mass index (BMI) was ? 95th percentile and mean age was 12 ± 2.8 years old. The control group (group 2) consisted of 45 children whose body mass index (BMI) was between 25th -84th percentil and mean age was 11.4 ± 2.9 years old. The detailed history, epidemiological data and physical examination were performed. The population classified three groups according to sport activities. 97th percentile and higher values were accepted as morbid obesity. The blood pressure was measured with a mercury sphygmomanometer with utilizing the proper size cuff in compliance with the criterion used by the “National High Blood Pressure Education Program Working Group”. The complete blood count and biochemistry tests (renal and liver function tests, electrolytes, lipids, hsCRP) of the cases were analysed with biochemistry Roche Cobas Integra 800 and hormon assays of the cases (thyroid function tests, diurnal cortisol, ACTH, 17 OHP, prolactin, DHEA-S) were analysed by ECLIA method on Roche Elecsys 2010 device in the laboratory of our hospital. IR-HOMA values > 2.5 in prepuberal and > 4 in pubertal were defined as the insulin resistance. Bone ages of cases were evaluated with left hand wrist X-ray by using Greulich and Pyle Bone Age Atlas. flow mediated dilation (FMD) was used to assess the endothelial functions of all cases. The brachial artery was evaluated with SPG 12 MHz surface probes by using GE voluson ultrasound system in this method. FMD was expresses as percent (%) increase according to the basal vein dimension. 7% mean value was taken as the limit in the comparisons.

Results: The ratio of male and female was 20/39 in group 1 and 14/31 in group 2. 32.3% of the cases in group 1 and 47.6% of the cases in group 2 were prepubertal. The waist and hip circumferences ratio of the group 1 (0.86 ± 0.05) was significantly higher than group 2 (0.80 ± 0.07). While there was no difference between groups 1 and 2 in terms of the birth weight, using duration period of vitamin D and beginning time to additional nutrition, breastfeeding duration of group 1 (10.6 ± 7.8 months) was significantly shorter than group 2 (14 ± 7.4 months). BMIs of the mothers in group 1 were statistically higher than the mothers in group 2 (27.5 ± 4.8 kg/m² and 24.3 ± 3.2 kg/m² respectively. The mean of IR-HOMA was 4 ± 2.9 in group 1 and 1.9 ± 0.8 in group 2 and there was the insulin resistance in 51% of the obese cases. The dyslipidemia was diagnosed in 38.5% of the cases in group 1. The systolic and diastolic blood pressures in group 1 (117 ± 12.2 mmHg and 73.7 ± 9.4 mmHg respectively) were significantly higher than in group 2 (107.5 ± 9.1 mmHg and 68.2 ± 7.1 mmHg respectively). Hypertension was determined in 25% of the cases included in group 1. The minimum values of FMD in groups 1 and 2 were 1.01% and 3.1% respectively. The maximum values of FMD in groups 1 and 2 were 9.7% and 15% respectively. The mean values of FMD was %5 ± 2.3 in group 1 and %8.1 ± 3.5 in group 2. Compared with group 2, group 1 demonstrated significantly impaired FMD. There was no association between FMD and the birth weight, breastfeeding duration, physical exercises in two groups. A negative correlation was found between FMD and BMI ($p < 0.01$, $r = -0.402$). The correlation was determined between FMD and BMI of the mother ($p = 0.017$, $r = -0.305$) and the presence of obese individuals in the family ($p = 0.021$, $r = -0.413$). It was found that a significant negative correlation between FMD and waist-hip circumference ratio ($p = 0.003$, $r = -0.421$). When each groups were assessed in terms of biochemical and hormonal characteristics, there was low negative correlation between FMD and uric acid level and strong negative correlation between FMD and ALT level were determined in group 1.

Conclusion: In our study showed that the obesity begins in the childhood period may cause to the endothelial dysfunction. For this reason, according to our opinion, recognition prior indicators of endothelial dysfunction in early time may be helpful both to take the precautions required and to prevent cardiovascular complications in childhood and influences to the adult period.

The rising sizes of the waist and hip circumferences, positive family history for obesity and obesity of the parents were determined as the most important parameters negative affecting FMD. Unlike the literature, the association between endothelial dysfunction and GGT level the indicator of the hepatosteatosis in obese children was also found as well as FMD and ALT have also a close association independent from BMI in this study. Thus, a different point of view was formed since ALT may possibly have a predictor value in the assessment of the endothelial functions and it is also found as a highlighted risk factors for the endothelial dysfunction in this study. Because of this reason, it can be recommended that when the liver function tests carry out in obese children it does not show only hepatosteatosis but also can be used as an early indicator of the cardiovascular complications of obesity. Another important subject to be emphasize that the ALT level in the childhood period may be an early cardiovascular risk indicator in both obese and nonobese children.

Case Report **Published Date:- 2021-02-16**

Papillary thyroid cancer and cervical lymph mode metastases – optimal preoperative evaluation

Papillary thyroid cancer (PTC) is the most common subtype of thyroid cancer and a highly curable malignancy [1]. However, despite its excellent prognosis, cervical lymph node metastases (CLNMs) are present in a significant percentage of patients with papillary thyroid cancer (PTC) (upto 50% - 60%) [2].

Research Article **Published Date:- 2021-01-19**

Association between obesity profile and non-alcoholic fatty liver by race/ethnicity

NAFLD is characterized by accumulation of fat in the liver that can lead to health complications. Previous studies have found the obesity phenotype and its components to be risk factors for the development of NAFLD. This study aims to examine the relationship between the obesity phenotype and NAFLD among each racial-ethnic group. We analyzed data from the NHANES III survey (1988-1994). The obesity phenotype was defined based on BMI and metabolic syndrome. NAFLD was defined by abdominal ultrasounds among non-alcoholics with no infection or taking drugs affecting the liver. A higher prevalence of NAFLD was found among the metabolically unhealthy obese group (43.1%) and the metabolically unhealthy overweight (29.4%) than the metabolically unhealthy normal weight (11.8%). Mexicans-Americans had higher odds of NAFLD relative to whites (adjusted odds ratio (AOR) = 1.3, 95% confidence interval (CI) = 1.01-1.9, $p = 0.04$). The metabolically healthy obese phenotype was associated with NAFLD ($p > 0.05$) in the overall sample and in Whites. The metabolically healthy overweight was associated with NAFLD only among Mexican-American ($p < 0.05$). Metabolically unhealthy overweight or obese had higher odds of NAFLD relative to the metabolically healthy normal weight and this relation is consistent in all the racial/ethnic groups ($p < 0.05$). Metabolically healthy overweight and obese individuals had a high chance of NAFLD and it varied by race/ethnicity. Healthcare providers should pay more attention to care for those who are part of the metabolically healthy overweight or obese group especially among the Mexican-American population.
