the inhibitory role of estrogen in the male HPG axis. Clinicians may consider this rare diagnosis for men in their late teens or early twenties, who have spontaneous initiation of puberty, presenting with bone pain and continued linear growth.

Adrenal

ADRENAL - HYPERTENSION

Clinical Factors Associated with Insulin Secretion and Sensitivity in Patients with Primary Aldosteronism

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Introduction: Primary aldosteronism (PA) is associated with an increased risk of impaired glucose tolerance or type 2 diabetes mellitus. Previous studies have reported that impaired insulin secretion and insulin sensitivity in PA may lead to impaired glucose tolerance. However, the relationship between PA and glucose tolerance, and the factor associated with these glucose metabolism abnormalities is not well understood. In particular, few studies have analyzed the association between aldosterone excess and insulin sensitivity or resistance after the adjustment for other clinical variables. In this study, we analyzed the associations between multiple clinical variables observed in PA and the indices of insulin sensitivity and resistance, using the result of 75 g oral glucose tolerance test (OGTT).Method: This was a retrospective observational study that analyzed the data of 646 patients with PA who underwent adrenal venous sampling and 75 g OGTT. The insulinogenic index and Matsuda index, indices of insulin secretion and sensitivity, respectively, were calculated from the results of a 75 g OGTT. Correlations between these indices and the multiple clinical variables were analyzed. In addition, we performed multiple regression analyses to identify the independent explanatory variables of these indices.Results: Insulinogenic index had positive correlations with the body mass index (BMI), alanine aminotransferase (ALT) level, triglyceride (TGL) level, and potassium level, and negative correlations with both age and plasma aldosterone concentration (PAC). In a multiple regression analysis, both the age (β = -0.231, $p < 0.001$) and potassium level (β = 0.175, $p = 0.002$) were selected as the independent explanatory factors. The Matsuda index had positive correlations with the PAC and cortisol level after a 1 mg dexamethasone suppression test (DST), and negative correlations with BMI, ALT level, TGL level, plasma renin activity (PRA), and potassium level. In a multiple regression analysis, BMI (β = -0.216, $p < 0.001$), ALT level (β = -0.290, $p < 0.001$), TGL level (β = -0.225, $p < 0.001$), the cortisol level after 1 mg DST (β = 0.124, $p = 0.009$), and PRA (β = -0.119, $p = 0.019$) were selected as the independent explanatory factors. Conclusion: In PA patients, older age and decreased potassium levels were associated with impaired insulin secretion. An increase in the variables associated with metabolic abnormalities such as BMI, ALT, and TGL were associated with decreased insulin sensitivity. In addition, we found that decreased PRA was associated with increased insulin sensitivity.

Adrenal

ADRENAL MEDICINE — CLINICAL APPLICATIONS AND NEW THERAPIES

A Phase 3 Study of a Modified-Release Hydrocortisone in the Treatment of Congenital Adrenal Hyperplasia

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Background: Patients with congenital adrenal hyperplasia (CAH) due to classic 21-hydroxylase deficiency have poor health outcomes related to inadequate glucocorticoid (GC) replacement. We compared disease control of adults with classic CAH treated with a modified release hydrocortisone (MRHC), which replicates physiological diurnal cortisol secretion, versus standard GC therapy.

Methods: 6 month, open label, study in 122 patients randomised either to treatment with MRHC (Chronocort®, Diurnal Ltd, Cardiff, UK) twice daily at ~ 0700h & ~2300h, or to remain on their standard GC regimen (hydrocortisone, prednisolone, prednisone, dexamethasone). Patients had 24-hr profiling of serum 17-hydroxyprogesterone (17-OHP) at baseline and for dose titration at 4 and 12 weeks. The primary efficacy endpoint was the change from baseline to 24 weeks in the natural logarithm of the mean of the 24-hr standard deviation score (SDS) profile for 17-OHP.

Results: Both groups achieved improved hormonal control at 24 weeks. The mean 24-hour 17-OHP SDS was significantly lower on MRHC compared to standard GC at 4 weeks ($p = 0.0074$) and 12 weeks ($p = 0.019$), but not at 24 weeks. In post-hoc analyses at 24 weeks, MRHC treatment showed a greater reduction in 17-OHP SDS compared to standard GC in the morning, 0700-1500h ($p = 0.0442$) and a greater reduction in log transformed 17-OHP 24 hour AUC ($p=0.0251$). Defining a morning 17-OHP <1200ng/dl (<36 nmol/L) as good control, for patients not controlled at baseline 85% were well controlled at 24 weeks with