Abstract: Type II diabetes (T2D) is characterized for insulin resistance in muscle, liver, and fat (1). Progesterone receptor membrane component 1 (Pgrmc1) is novel cell surface receptor which is associated with insulin receptor beta (IRβ) (2). Therefore, we speculated Pgrmc1 might be related to T2D. Using *Pgrmc1* KO mice reported in our previous study (3), we observed the decrease of body weight (BW) and increase of muscle weight per body weight. When blood glucose level in post-prandial state was lower, *Pgrmc1* KO mice showed improvements in glucose tolerance test (GTT) and insulin tolerance test (ITT). Though insulin level was low, insulin signaling genes were up-regulated in post-prandial *Pgrmc1* KO mice, especially in muscle. Regulations of blood glucose level and insulin signaling gene levels by *Pgrmc1* were also similarly observed in insulin-deficient state. To induce T2D, C57BL/6 mice were fed with high-fat diet for 8 weeks and injected by low dose of streptozotocin (30mg/kg). As a result, T2D-induced *Pgrmc1* KO mice increased lean mass per BW, decreased the blood glucose level, and improved GTT and ITT. The insulin signaling genes were also up-regulated, while cytoplasmic GLUT4 was decreased, but membrane GLUT4 was increased in T2D-induced *Pgrmc1* KO muscle. Glycolysis, TCA cycle, and oxidative phosphorylation genes were increased, suggesting energy metabolism was increased in T2D-induced *Pgrmc1* KO muscle. Present study suggests that *Pgrmc1* loss increases insulin signaling through induction of cytoplasmic IRβ and pAKT, and induces glucose uptake of muscle, thereby showing improvement in T2D progression. This has important clinical value because *Pgrmc1* modulation will evade hypoglycemia caused by classic insulin therapy for T2D (4).
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Thyroid

BENIGN THYROID DISEASE AND HEALTH DISPARITIES IN THYROID II

Patterns of Thyroid Disease in Basrah, Iraq. Retrospective Study

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Background: Data on thyroid disease epidemiology in the Middle East are scanty and anecdotal. This study aimed to assess the pattern of thyroid disease seen in Faiha Specialized Diabetes, Endocrine and Metabolism Center (FDEMC) in Basrah,Southern Iraq.
Methods
Retrospective observational study of database retrieval from the FDEMC a tertiary care Center in Basrah for the period of September 2008 to January 2019. Included all adults non pregnant 18 years or older.
Results
Total enrolled patients 17878; of them 4174(23.3%) men and 13705(76.7 %) women. There were 2229(12.5%) patients with hypothyroidism (83.0% women), with subclinical hypothyroidism observed in 364 out of 2229 with hypothyroidism(16.3%).
We found 1087 (6.1%) patients with hyperthyroidism (67.7% women) and subclinical hyperthyroidism observed in 92 of 1087 hyperthyroidism (8.4%).
Thyroid nodularity was seen in 944 (5.2%) patients (807 women in 85.5%). Thyroidectomy was done in 776(4.3%). Differentiated thyroid cancer was seen in 77 (0.4%).
Conclusion: Hypothyroidism was double that of hyperthyroidism. Cross-sectional community-based study can give more information on the epidemiology of thyroid disease in Iraq.Iodine status needed studded in the future.
Keywords: Hyperthyroidism, hypothyroidism,autoimmune thyroid disease, Iraq.

Diabetes Mellitus and Glucose Metabolism

CLINICAL AND TRANSLATIONAL STUDIES IN DIABETES

Mechanisms of Insulin Resistance in Skeletal Muscle in Women with PCOS

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Abstract: Polycystic ovary syndrome (PCOS) is the most common female endocrine disorder affecting metabolic, reproductive and mental health of 8-13% of reproductive-age women. Insulin resistance (IR) appears to underpin the pathophysiology of PCOS and is present in approximately 85% of women with PCOS. This underlying IR has been identified as unique from, but synergistic with, obesity-induced IR (1). Skeletal muscle accounts for up to 85% of whole body insulin-stimulated glucose uptake, however, in PCOS this is reduced about 27% when assessed by hyperinsulinemic euglycemic clamp (2). Interestingly, this reduced insulin-stimulated glucose uptake observed in skeletal muscle tissue is not retained in cultured myotubes