

4th European **ENDOCRINOLOGY AND DIABETES CONGRESS**

September 09-10, 2024 | Paris, France

The contributions of glucocorticoid ablation on glycemic parameters in congenic rats**Orien L Tulp***University of Science Arts and Technology, USA*

Adrenal Glucocorticoid hormones exert well established contributions to energy metabolism, with diverse effects in different tissues that effect energy balance including skeletal muscle, liver, and adipose tissue. To determine the effects of adrenal glucocorticoids on key insulin mediated parameters of energy metabolism and nonshivering thermogenesis, groups of congenic lean and obese were fed normal or thermogenic cafeteria (Café) diets during a 12 week duration of observation. Rats were fed a Purina Chow diet (CHOW) from weaning to 9 weeks of age, and the CHOW plus a highly palatable cafeteria diet supplement (CAFÉ diet) from 9 to 12 weeks of age. Subgroups of obese animals were subjected to a partial (HEMI-ADX) or bilateral adrenalectomy (ADX) at 6 weeks of age to attenuate or remove glucocorticoid contributions to glycemic parameters. Measures of weight gain (WG) and of an oral glucose tolerance (OGT) were obtained in the three treatment groups at 6, 9 and 12 weeks of age. The WG of ADX-obese rats was similar to that of their lean littermates at 6 and 9 weeks of age on the chow diet but increased to twice that observed in their lean littermates from 9 to 12 weeks of age when offered the Café diet regimen. The OGT responses after 30 to 60 minutes and the area under the OGT curve were impaired but not diabetic in obese animals at all ages compared to lean littermates and returned toward those of normally lean rats after ADX. The Insulin to glucose ratio (I:G) was also consistent with insulin resistance in obese but not in ADX-obese or lean rats at 12 weeks of age. Glycemic and thermogenic responses of Hemi-ADX rats were similar to those of unoperated obese littermates, and insulin administration (Graduated dosage from 1 to < 8 u/d, s.c.) restored the magnitude of insulin resistance in ADX rats. These results are consistent with restoration of typical insulin-mediated components of glycemic parameters and glucose metabolism in peripheral tissues following ADX of congenic obese rats, and further suggest that the counterregulatory effects of insulin and glucocorticoid hormones may be contributory to the impaired glycemic responses in the obese phenotype of the LA/N^{cp} (corpulent) rat, and are consistent with a receptor-mediated element in the development of insulin resistance and glucose uptake in peripheral tissues commonly associated with the early epigenetic expression of obesity in this strain.

Biography

Orien Lee Tulp is the founder and President of the University of Science, Arts & Technology [USAT], in the British Overseas Territory of Montserrat. Founded in 2003 along a traditional academic platform, USAT has become a leading new school in the CARICOM, with multiple Colleges of the Institution and has among the highest placement rates for its graduates in academic and professional careers of all CARICOM Institutions. USAT strives for excellence in Research, Education, and Community Service and to date it has produced hundreds of degreed graduates including PhDs, MDs and others. The Einstein Medical Institute, which focuses on medical and graduate research and education functions as a Division of the Graduate College of USAT.