

## 87TH ANNUAL MEETING OF THE ENDOCRINE SOCIETY

The meeting was held from June 4 to 7, in San Diego.

### Waist-to-Tallness Ratio Effective Indicator of Obesity, CVD

A study by the Max Planck Institute of Psychiatry, Munich and the University of Dresden found that the simplest and most predictive standard for obesity and related cardiovascular disease risks is waist-to-tallness ratio (WTR).

Obesity has been clearly associated with cardiovascular risk factors, and obesity standards have been used to predict cardiovascular risks. For years, body mass index (BMI) was the standard measurement. In recent years, however, waist circumference (WC) is proposed as a more appropriate indicator.

The DETECT study was undertaken to determine the most predictive obesity standard. DETECT enrolled 48,353 primary care patients. From this population, investigators tested the predictive value of BMI, WC, hip circumference, waist-to-hip ratio and WTR.

DETECT was a cross-sectional study with a prospective-longitudinal component. Participants were drawn from a nationally representative sample of primary care settings. All patients completed a standardized clinical and lab assessment that included questionnaires and diagnostic screening measures. A sub-sample of patients (n=7,519) also underwent a standardized laboratory screening program and received follow-up over 12 months.

WTR was found to be most strongly associated with the most risk factors in males and females. A cut-off for the WTR of 0.53 for women and 0.55 for men revealed both highest specificity and sensitivity for overall-cardiovascular risk.

"The study strongly suggests that the measurement of WTR is simple and the most reliable predictor of cardiovascular risk in primary care," said Dr. Schneider.

### Skeletal Insulin Therapy May Alleviate Insulin Resistance

The presence of metabolic insulin resistance may result from chronic illnesses, and according to a study presented here, intensive therapy may help to correct it.

Insulin therapy, when it is intensely delivered to the skeletal muscle instead of the liver, resulted in patients overcoming metabolic insulin resistance in type 2 diabetes. Lies Langouche, from the Katholieke Universiteit Leuven, Belgium, studied the effects of intensive and conventional insulin therapy in 36 nonsurvivors, randomized to receive either therapy. Investigators tested how intense therapy versus conventional therapy effected insulin signaling in both the liver and skeletal muscles. The signaling molecules in the

liver and skeletal muscles were quantified with immunoprecipitation (IRS1+PI3K), the investigators reported.

A significant stimulation of IRS was seen in the randomized patients who received intensive insulin therapy, and an increased level of phosphorylation was noted in the muscle. From this study, Mr. Langouche said that intensive insulin therapy delivered to skeletal muscles may help to overcome metabolic insulin resistance.

### Diabetes May Mean Greater Risk of Hypogonadism

Testosterone levels are low in 40% of men, however diabetic men are at an increased risk for hypogonadism compared to healthy counterparts.

Hypogonadism includes side effects like erectile dysfunction and loss of bone mineral density. It may effect men with low testosterone. In a study of 2,162 men with a total testosterone (TT) <300 mg/dL, 38.7% of men had hypogonadism and 23% of the men had diabetes. Men were aged  $\geq 45$  years, and were visiting one of 95 participating primary care centers. All were tested for TT, free testosterone, bioavailable testosterone and sex hormone-binding globulin levels. This was done to evaluate the presence of hypogonadism.

Men were divided into patients receiving testosterone therapy and those not receiving therapy. Among patients not receiving therapy, 50% had hypogonadism (RR 2.09, 95% CI, 1.70-2.58). Over half of diabetic patients were not receiving therapy.

Investigators also tested for the level of testosterone among all patients. The levels of bioavailable testosterone and free testosterone were low in 43.3% and 37.7% of patients, respectively.

### Beta Cells Play a Role in Worsened Prediabetes

By comparing insulin sensitivity to beta-cell function, Leigh Perreault and colleagues were able to determine that beta-cell failure does indeed worsen prediabetes more than previously thought. Both beta-cell function and insulin sensitivity contribute to diabetes development.

Patients with early or advanced prediabetes were tested for insulin sensitivity to detect beta-cell response. Aged  $56 \pm 2$  years, patients with early prediabetes had impaired fasting glucose between 100 and 125 mg/dL. Those with advanced prediabetes had impaired glucose tolerance, with a fasting glucose between 100 and 135 mg/dL.

Comparing groups, investigators noted that patients with advanced prediabetes had lower levels of insulin sensitivity. These patients also were susceptible to beta-cell failure because the insulin sensitivity index was too low. Beta-cell failure occurred when insulin sensitivity reached approximately 50% in the advanced prediabetes group. ■