outcome. "Understanding the condition/complications" and "attending medical appointments" were seen as having relatively higher priority for endocrine TC. Barriers related to lack of financial support and low institutional priority. Involving key stakeholders facilitated implementation. Having a dedicated nurse was noted as an opportunity for improving TC. **CONCLUSIONS:** Implementation of structured TC has been piecemeal and most practices do not fully utilize recommended best practices ('Got Transition'). Few practices formally collect outcome data. The major perceived barrier to implementing TC is financial. Practices incorporating nurses value discipline-specific contributions. These pilot data point to a role for nursing in providing comprehensive, high quality, comprehensive care for AYAs with chronic endocrine conditions.

Diabetes Mellitus and Glucose Metabolism

IMPACTS OF METABOLISM ON CLINICAL CHALLENGES

Lower Serum Myostatin Levels Are Associated with Higher Insulin Sensitivity in Adults with Overweight/Obesity

Melanie S. Haines, MD[1], Laura E. Dichtel, MD, MHS[1], Allison Kimball, MD[1], Bryan Bollinger, BA[2], Anu V. Gerweck, NP[2], Miriam A. Bredella, MD[3], Karen K. Miller, MD[1].
[1]Massachusetts General Hospital Neuroendocrine Unit/Harvard Medical School, Boston, MA, USA, [2]Massachusetts General Hospital Neuroendocrine Unit, Boston, MA, USA, [3]Massachusetts General Hospital Department of Radiology/Harvard Medical School, Boston, MA, USA.

OR26-03

In preclinical models, inhibition of the myokine myostatin prevents or improves insulin resistance (IR). However, studies investigating the association between serum myostatin levels and IR in humans are discrepant, perhaps in part because myostatin immunoassays lack specificity and sensitivity. New sensitive and specific myostatin LC-MS/MS assays make it possible to determine if higher serum myostatin levels are independently associated with greater IR in adults with overweight/obesity. If true, therapeutic manipulation of myostatin pathways may be a potential therapeutic target to prevent or treat type 2 diabetes (T2DM) in this high-risk population, in which current strategies, e.g. weight loss, are difficult to implement and maintain.

We studied 75 adults (53% women), 20–65 yo, BMI ≥25 kg/m^2 and generally healthy without T2DM. Serum myostatin levels (1° independent variable) were measured by LC-MS/MS (Brigham Research Assay Core, Boston, MA), with no cross-reactivity with growth differentiation factor 11 (GDF11), activins or transforming growth factor beta (TGF-β), sensitivity of 0.5 ng/mL and intra- and inter-assay coefficient of variation of 10 and 12%. Insulin sensitivity (IS) (1° dependent variable) was estimated by QUICKI, appendicular lean mass (ALM) by DXA, visceral adipose tissue (VAT) by CT and intrahepatic (IHL) and intramyocellular lipids (IMCL) by MR spectroscopy. Models were run sex- combined and stratified given sex differences in muscle mass.

Mean age was 47.9±12.2 years and BMI was 33.2±5.7 kg/m^2 (mean±SD). Compared to men, women had lower mean ALM (20.9±3.3 vs 29.2±3.3 kg, p<0.0001) and serum myostatin levels (7.28±1.87 vs 8.28±1.89 ng/mL, p=0.02) and similar mean IS (0.16±0.02 vs 0.15±0.02, p=0.13). Lower serum myostatin levels were associated with higher IS in the whole group (R=-0.32, p=0.008) and in women (R=-0.41, p=0.02)—both remained significant after controlling for ALM—but not in men (R=-0.16, p=0.36). In a multivariate model including VAT, IHL, IMCL and ALM, lower serum myostatin levels were associated with higher IS in the whole group (B_1= -0.37, p=0.003), in women (B_1= -0.43, p=0.02) and in men (B_1= -0.37, p=0.05). In a stepwise regression model including VAT, IHL, IMCL and ALM, VAT explained 18%, IHL explained 10% and myostatin explained 8% of the variability in IS in the whole group; in women, myostatin explained 18% and IHL explained 12% of the variability; in men, VAT explained 26% of the variability and myostatin was not a significant determinant.

In conclusion, lower serum myostatin levels were associated with greater IS in adults with overweight/obesity, independent of muscle and adipose depots known to be associated with T2DM risk. Future studies should investigate potential sex differences in the association between myostatin and IS. Therapeutic manipulation of myostatin pathways may be a potential therapeutic target to prevent or treat T2DM.

Bone and Mineral Metabolism

PARATHYROID HORMONE TRANSLATIONAL AND CLINICAL ASPECTS

Bioactivity of Long Acting PTH Fusion Molecules Tested in a Novel Non-Surgical Animal Model of Hypoparathyroidism

Ian R. Wilkinson, PhD[1], Narjes Ramezani-Pour, Bsc[2], Sayyed Hamid Zarkesh Esfahani, PhD[2], Richard Eastell, MBChB, MD[3], Richard John M Ross, MBBS,FRCP,MD[3].
[1]Sheffield University, Sheffield, United Kingdom, [2]Department of Cell and Molecular Biology & Microbiology, University Of Isfahan, Isfahan, Iran, Islamic Republic of, [3]Univ of Sheffield, Sheffield, United Kingdom.

SAT-408

Introduction: There is an unmet need for the development of long-acting PTH molecules to treat patients with hypoparathyroidism. We have established a novel non-surgical rodent model of hypoparathyroidism using oral Cinacalcet-HCl to test long acting analogues of PTH. Here we have tested the pharmacodynamics properties of two long acting PTH fusion molecules.

Methods: PTH fusion molecules tested: Fusion-1 is PTH (1–34) linked to GHBP (residues 1–238), and Fusion-2 is a Hybrid PTH-PTHrP (1) linked to GHBP (residues 1–238). For in vivo studies, normal male wistar rats were gavaged with 30 mg/kg Cinacalcet-HCl, immediately followed by a subcutaneous dose of PTH Fusion at 20 nmol/kg. Control animals received PTH (1–34) and vehicle only. Serum samples were taken and analysed for ionised calcium (iCa).

Results: Oral administration of Cinacalcet-HCl caused a reduction in iCa that was significantly different from vehicle controls at 2 to 24hrs post dose (ANOVA $P < 0.0001$). PTH