

All of the self-reported cannabis usage admissions (33/33) and readmissions (81/81) presented with additional aggravating factors for DKA such as medication noncompliance, polysubstance abuse, and infection. Finally, 20 of the overall 130 patients admitted during this timeframe presented with new onset DKA, where none reported cannabis usage, 20% (4/20) completed general toxicology screening, and none underwent cannabis specific toxicology screening.

From the observational retrospective analysis at this hospital, there is a need for awareness about substance abuse screening, especially in adults with a history of recurrent hospital admissions for DKA. Knowledge among health care providers and patient education regarding the effect of cannabis usage on metabolic factors and its diabetes complications, including diabetes self-management at time of drug usage, can be further explored in prospective studies.

References: (1) Umpierrez (2006) *Diabetes Care*, 29(12), 2755-2757. (2) Brown et al., (2017) *JAMA*, 317(2), 207. (3) Haffajee et al., (2018) *NEJM*, 379(6), 501-504.

## Adipose Tissue, Appetite, and Obesity MECHANISMS AND TREATMENT OF OBESITY IN HUMANS

### *The Treatment of Partial Lipodystrophy in the Setting of Neutralizing Antibody Against Metreleptin with Leptin Receptor Agonist REGN4461*

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#### OR33-02

**Background:** An 18-year-old patient with atypical partial lipodystrophy had a transient initial metabolic response to metreleptin that deteriorated when neutralizing antibodies against metreleptin developed. A therapeutic trial with setmelanotide did not result in any metabolic benefit as desired. Because her status continued to deteriorate, we attempted to treat her with REGN4461, a fully human monoclonal antibody that is an agonist to the human leptin receptor (LEPR). **Clinical Case:** A compassionate use protocol (IND No. 144013) was initiated to treat the patient with REGN4461. The treatment consisted of 5 mg/kg intravenous infusion followed by 300 mg weekly subcutaneous injections of REGN4461. The primary endpoint was achievement of fasting triglycerides < 500 mg/dL without the need for ongoing plasmapheresis. Treatment-emergent adverse events were also followed. Here, we report her first 21-week response to treatment with REGN4461. The treatment resulted in a reduction of triglycerides from 1288 mg/dL to 344 mg/dL and allowed her to discontinue plasmapheresis. She lost 3.4 kilograms so far, and her liver size reduced per liver span measured by physical examination. Also, the liver MRI at week 12 showed a significant reduction in liver size and fat content (from 29.9% to 16.6%). Although her glucose control is still challenging, a slight reduction in her HbA1c was observed at week 12 along with improvements in her average glucose levels and total daily insulin requirement so far. No untoward signals were detected in

her safety measurements. **Conclusion:** To date, treatment with REGN4461 offered substantial clinical benefit by improving the metabolic abnormalities in this unique patient. This experience represents the longest human exposure with REGN4461. The improvements noted in metabolic parameters and hepatic steatosis are similar to previous observations in lipodystrophic humanized LEPR mice. Our results suggest that REGN4461 showed clinical benefit even in the presence of neutralizing antibodies to metreleptin.

## Thyroid

### THYROID NEOPLASIA AND CANCER

#### *How Does the American Joint Committee on Cancer 8<sup>th</sup> Edition Tumor, Node, Metastasis Staging System Perform in Patients Evaluated at a Major Middle Eastern Medical Center?*

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#### MON-520

The American Joint Committee on Cancer (AJCC) Tumor Node Metastasis (TNM) Classification of Cancer 8<sup>th</sup> edition (AJCC8) was officially introduced in January 2018 as a replacement for the previous version (AJCC7). Validation studies using data obtained from large cancer registries in North America demonstrated the superiority of AJCC8 over AJCC7 for prediction of survival. Subsequent studies from Europe and East Asia have mostly shown similar findings. However, these data may not be generalizable to other parts of the world. In this first study from the Middle East (Saudi Arabia), we compared these two versions of AJCC staging for their concordance and prediction of outcome in a large unselected sample of patients (pts) with DTC managed at a major referral medical center. We also compared the AJCC staging systems with the American Thyroid Association (ATA) Risk Classification.

Of 814 consecutive pts seen during this period, 94 were excluded either due to their diagnosis being medullary or anaplastic thyroid cancer (37) or because of deficient data. The remaining 720 pts (149 males (20.7%), 571 females (79.3%) were included. The median age at the diagnosis was 37 yrs (range, 6-83). Total thyroidectomy was performed in 693 pts (96.3%) and central and/or lateral lymph node dissections in 487 pts (67.6%). I-131 was administered to 626 pts (87%). The tumors were classic PTC in 519 pts (72%), follicular variant PTC in 100 (13.9%), Tall cell PTC in 22 (3.1%), diffuse sclerosing PTC in 10 (1.4%), follicular thyroid cancer in 21 (2.9%) and other rare subtypes in 48 pts (6.8%).

The number (%) of pts within each stage group by AJCC7 and AJCC8 respectively are as follows: Stage 1: 514 (71.4%) vs. 597 (82.9%), Stage 2: 46 (6.4%) vs. 75 (10.4%), Stage 3: 63 (8.8%) vs. 11 (1.5%), Stage 4: 97 (13.5%) vs. 37 (5.1%).

Comparing AJCC8 with the ATA risk stratification system in 709 pts in which data were available, we found a high