

of SG data for both Auto Mode turned ON and turned OFF. The % of TIR, TBR and TAR, and the associated glucose management indicator (GMI) were evaluated for the overall OFF (2,524,570 days) and ON (6,308,806 days) periods, and across different age groups. **Results:** System data TIR was 71.3%; TBR was 0.4% and 1.9%, respectively; and TAR was 26.8% and 6.2%, respectively. User-wise data of Auto Mode OFF versus ON showed a mean of 70.3% of the time spent in Auto Mode, that TIR increased from 60.9% to 69.9%; and that both TBR and TAR decreased. For those 7-13yrs (N=1,417), TIR increased from 48.7% to 61.5%; TBR increased from 0.5% to 0.6% and from 2.0% to 2.2%, respectively; and TAR decreased from 49.3% to 36.3% and from 20.5% to 13.0%, respectively. For those 14-21yrs (N=4,194), TIR increased from 51.0% to 61.5%; TBR decreased from 0.7% to 0.6% and from 2.3% to 2.0%, respectively; and TAR decreased from 46.7% to 36.5% and from 18.5% to 12.5%, respectively. For those ≥ 22 yrs (N=45,643), TIR increased from 62.2% to 70.9%; TBR decreased from 0.7% to 0.5% and from 2.6% to 1.9%, respectively; and TAR decreased from 35.2% to 27.3% and from 9.9% to 6.3%, respectively. The mean GMI decreased by 0.23% (overall), 0.48% (7-13yrs), 0.35% (14-21yrs), and 0.22% (≥ 22 yrs), respectively, with Auto Mode ON versus OFF. **Discussion:** In over 6 million days of real-world MiniMed™ 670G system Auto Mode use in the U.S., TIR of a large pediatric and adult population with T1D improved by 9% compared to when Auto Mode was OFF, which was comparable to or exceeded the TIR observed in the smaller pivotal trials. These results further support outcomes of the pivotal trials and increased glycaemic control with system use.

Pediatric Endocrinology

SEXUAL AND GENDER DEVELOPMENT IN THE PEDIATRIC POPULATION

Blockers and Bones: Loss of Absolute Bone Mineral Density Is Common in Trans- and Gender-Diverse Adolescents Treated with GnRHa.

Grant Ferguson, MBBS FRACP, Peter J. Simm, MBBS (Hons) MD FRACP, Michele A. O'Connell, MB BCh BAO (Hons), MRCPI, FRACP, MD, Kenneth C. Pang, MBBS (Hons), BMedSc, FRACP, PhD.

The Royal Children's Hospital, Melbourne, Australia.

OR15-01

Background: The expected pubertal accrual of bone mineral density (BMD) may be disrupted in trans and gender diverse (TGD) adolescents who undergo pubertal suppression with Gonadotropin Releasing Hormone agonists (GnRHa)¹. The extent of this effect remains unclear and is confounded by varying methods used to assess BMD¹.

While BMD Z-scores in GnRHa-treated TGD adolescents may be expected to decline relative to pubertal peers, this measure provides no information on actual changes in BMD. Annualised, percent change in BMD (%BMD velocity, %BMDV) provides a standardised measure of accrual or loss, but has not been reported in this context.

Aims: (1) To evaluate bone accrual or loss using %BMDV in a cohort of GnRHa-treated TGD adolescents; **(2)** to explore associations between baseline characteristics (BMD Z score, Vitamin D status and Tanner Stage) and %BMDV.

Methods. Retrospective 10yr audit at tertiary pediatric gender service. Bone densitometry data were collected at baseline and 12-24monthly during GnRHa. Areal BMD values and Z-scores for lumbar spine (LS) and total hip (TH) were obtained. %BMDV between baseline and final scan was calculated for LS and TH. Population data for %BMDV before and during puberty were derived from the BMD in Childhood Study². Results are reported as mean (\pm SD) or mean difference (MD; 95% confidence interval).

Results. Data from 28 patients (20 transfemale; 8 transmale) who commenced GnRHa at 13.3 (± 2.0) yrs and were observed over 23.2 (± 11.5) mo were included. Mean (\pm SD) %aBMDV during GnRHa therapy was -0.66 (± 4.54) %/yr for TH and +1.91 (± 4.23) %/yr for LS, both substantially lower than %aBMDV in pre-pubertal population controls ($\sim +3-4\%$ /year). 53% of GnRHa-treated youth exhibited negative %aBMDV, indicating bone loss, at TH and/or LS. %aBMDV was lower in (i) Vitamin D deficient youth, with MD at TH (-6.07; -9.00, -3.13); and LS (-4.93; -9.56, -0.30) relative to Vitamin D sufficient peers and (ii) youth who were Tanner stage 4+ at baseline, with MD at TH (-4.1; -7.7, -0.44) and LS (-3.6; -7.2, 0.01) relative to Tanner stage 2-3 peers. Height-adjusted Z scores declined from baseline with GnRHa treatment in >95% of patients and were not predictive of %aBMDV.

Conclusion. GnRHa-treated TGD adolescents in this cohort exhibited lower BMD accrual rates than pre-pubertal population controls. Over half of our cohort lost BMD, which is a significant concern in adolescence. Vitamin D deficiency and more advanced pubertal stage at GnRHa initiation were associated with greater bone loss during treatment. These data highlight the need to monitor and optimise bone health in GnRHa-treated TGD young people. We recommend routine annual densitometry and %BMDV evaluation regardless of baseline Z-scores as well as routine screening and treatment of vitamin D deficiency while on GnRHa.

References.

1. Chew D., et al., Pediatrics, 2018. 141: p.e20173742.
2. Zemel B.S., et al., JCEM, 2011. 96 p.3160-9.

Cardiovascular Endocrinology

ENDOCRINE HYPERTENSION AND ALDOSTERONE EXCESS

Changes in Albuminuria Precede Dietary Sodium-Dependent Changes in BP During Aging - a Longitudinal Study

Isis Akemi Katayama, PhD¹, Mariana M. Nascimento, undergraduate student¹, Danielle Cullinane, PhD², Ivone B. Oliveira, ms¹, Gordon H. Williams, MD³, Joel C. Heimmann, MD, PhD¹, Luminita Pojoga, PHD².

¹University of Sao Paulo, Sao Paulo, Brazil, ²Brigham and Women's Hospital, Boston, MA, USA, ³Brigham and Women's Hospital, Belmont, MA, USA.

SAT-550

Background: Hypertension (HT) is a well-established independent risk factor for adverse cardiovascular and renal (CVR) outcomes and a high salt (HS) diet is the main cause