

maintained between 5.0 to 6.0% without any anti-diabetic medication for more than 5 years. Repeated MMST in every 6–12 months still revealed preserved beta-cell functions and normal stimulated plasma glucose. Interestingly, repeated pancreatic auto-antibodies at 3 years after diagnosis showed negative anti-GAD and anti-IA2, but positive anti-ZnT8. The patient was advised to maintain his bodyweight and healthy behavior together with closely regular OPD follow-up.

**Conclusion:** Restored beta-cell function with completely insulin withdrawal in new-onset T1DM has been reported in very few cases which have some common factors as in our patient (low carbohydrate intake with regular exercise). Delaying autoimmune activity by reducing metabolic load in newly diagnosed T1DM might play a role in maintaining a honeymoon period and could lead to an innovative therapeutic option in new-onset T1DM.

## Diabetes Mellitus and Glucose Metabolism

### TYPE 1 DIABETES

#### *Prospective Longitudinal Study Evaluating Comprehensive Metabolic and Life Style Characteristics of Pancreas Transplantation Recipients*

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**Introduction:** Pancreas Transplantation (PT) improves quality of life in Type 1 Diabetes (T1D) patients but limited longitudinal data are available regarding comprehensive metabolic assessment and lifestyle. Our objective was to comprehensively assess T1D patients who underwent PT (PTA and SPK)  $\geq 1$  year prior on two separate visits 1 year apart. **Methodology:** We studied 12 PT recipients  $\geq 1$  year post PT. Two assessments 1 year apart included comprehensive assessment of graft function using standard mixed meal tolerance test (MMTT), Continuous Glucose Monitoring (CGM) for 1 week, body composition using DEXA scan, physical activity using ActiGraph for 1 week and dietary assessment by VIO CARE®.

**Results:** PT recipients (9F) were  $55.5 \pm 9.7$  years old, 91.7% Caucasian with  $34.9 \pm 12.3$  years of diabetes,  $6.7 \pm 5.2$  years (range-1.3–17.6 years) after PT. Ten participants underwent Pancreas Transplantation alone and two received Simultaneous Pancreas Kidney transplantation. Visit 1 (V1) showed HbA1c  $5.5 \pm 0.7\%$ , Fructosamine  $238.4 \pm 25.6$   $\mu\text{mol/L}$ , BMI  $31.2 \pm 6.7$   $\text{kg/m}^2$ , fasting plasma glucose (FPG)  $95.2 \pm 19.4$   $\text{mg/dL}$  and C-peptide  $2.6 \pm 1.0$   $\text{ng/ml}$  and visit 2 (V2) HbA1c  $5.5 \pm 0.6\%$ , Fructosamine  $244.4 \pm 41.3$   $\mu\text{mol/L}$ , BMI  $29.9 \pm 5.1$   $\text{kg/m}^2$ , FPG  $95.4 \pm 27.7$   $\text{mg/dL}$ , and C-peptide  $2.5 \pm 0.8$   $\text{ng/ml}$  (p-value not significant). One week CGM (n=9) showed excellent glucose control at both visits with mean glucose  $117.8 \pm 7.0$  vs.  $112 \pm 6.2$   $\text{mg/dl}$  and  $96.3 \pm 3.6$  vs.  $96.9 \pm 2.8$  % time in target range (70–180  $\text{mg/dl}$ ). Time  $>180$   $\text{mg/dl}$  and  $>250$   $\text{mg/dl}$  were  $2.7 \pm 3.0$  vs.  $1.3 \pm 1.7$  % (p=0.0413) and  $0.2 \pm 0.6$  vs.  $0.1 \pm 0.1$  % respectively. Mild CGM hypoglycemia ( $<70$   $\text{mg/dl}$ ) was observed

during both visits ( $1.0 \pm 1.0$  vs.  $1.7 \pm 2$  %). CV was  $21.1 \pm 5.5$  and  $20.1 \pm 4.8$  %. Eight recipients underwent MMTT and showed excellent response to Boost® with no significant difference between visits with exception of insulin concentrations at 60 mins (increased from V1) and 90 mins (decreased from V1) (p=0.0424 and 0.0235). DEXA (n=10) revealed similar total % mean fat, and fat distribution in arms, legs and trunk. ActiGraph (n=10) showed similar physical activity during both visits with  $16761 \pm 5176$  and  $14499 \pm 4192$  average steps/day respectively. Mean MET score was  $1.6 \pm 0.4$  and  $1.6 \pm 0.2$  indicating light intensity activity during both periods. Total mean sedentary bouts increased over 1 year ( $49.6 \pm 39.1$  vs.  $60.8 \pm 43.7$ , p=0.0038). Dietary assessment in 11 recipients showed no significant difference in dietary intake with calories intake  $1.3 \pm 0.4$  vs.  $1.2 \pm 0.5$  daily Harris-Benedict and macronutrient intake with fat of  $36.7 \pm 4.3$  % and  $36.5 \pm 5.7$  %, CHO of  $45.7 \pm 5.5$  % and  $45.7 \pm 5.5$  % and Omega-3 of  $0.1 \pm 0.1$  g and  $0.05 \pm 0.1$  g respectively. **Conclusion:** PT recipients have excellent glucose control and pancreas graft function 1 or more years after PT when assessed over successive 2 years with suboptimal body composition and dietary intake and above average physical activity.

## Diabetes Mellitus and Glucose Metabolism

### TYPE 1 DIABETES

#### *Reconsidering the Basal Proportion of Insulin Dose: Glycemic and Microvascular Outcomes in Type 1 Diabetes Mellitus*

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Optimal glycemic control is required to lower the risk of complications in type 1 diabetes mellitus (T1DM). This can be achieved with multiple daily insulin injections (MDI) or with continuous subcutaneous insulin infusion (CSII). Most diabetes guidelines recommend a proportion of basal insulin (basal proportion of total insulin dose; %B/T) around 50% of the total daily dose (TDD), although there is scarce evidence that suggests that a lower %B/T is associated with lower HbA1c levels. Our objective was to evaluate the association of the %B/T with glycemic and microvascular outcomes. We included 132 T1DM adults of the Diabetes Clinic in a tertiary care center, 117 (88.6%) using MDI and 15 (11.4%) using CSII. Data from the medical records and insulin pumps software during outpatient visits were retrospectively collected. Individuals with end-stage renal disease, solid-organ transplant, pregnancy, and glucocorticoid use were excluded. A positive correlation between %B/T and HbA1c levels was found,  $r=0.26$  (p=0.002). Three groups were analyzed according to the %B/T:  $\leq 40\%$ , 41–59% and  $\geq 60\%$ , observing differences in HbA1c concentrations: 7.1% (6.7–8.0%), 7.8% (7.2–9.1%) and 8.7% (7.6–10.2%), respectively (p=0.003). Regarding microvascular complications, the cases of nephropathy were 0 (0%), 23 (30.7%) and 18 (40%) across those groups (p=0.029) even though there was