**Introduction:** Intensive glycemic control that forms the benchmark in the management of type 1 diabetes mellitus (T1DM) is limited by the risk of hypoglycemia. Repeated episodes of hypoglycemia can lead to development of hypoglycemia unawareness and a six-fold increase in deaths in those experiencing severe hypoglycemia, including the so-called “death in bed syndrome”. Severe hypoglycemia occurs in 35–42% of T1 DM patients with 90–130 episodes/100 patient years. However, there is lack of data from our population7.

**Objective:** To estimate the prevalence of hypoglycemia unawareness in subject with T1DM utilizing continuous glucose monitoring device.

**Study design**

* Forty subjects (31.7%) with documented hypoglycemia without symptoms underwent a 72 hour continuous glucose monitoring (CGM) study using the Medtronic-ipro2 CGM device-MiniMed, Sylmar, CA.
* Intersitial glucose is measured every 5 minutes providing at least 750 readings per subject.
* Subjects also self monitored blood glucose with a glucometer (8 times a day: pre & post meal blood glucose, 12.00 & 3 AM and whenever symptomatic), and also maintained a symptom diary.

**Methods:**

* Data was obtained using ipro2 software on the Medtronic website: ipro.medtronic.com
* Hypoglycemia: defined here operationally as a CGMS reading of ≤65 mg/dl [encompassing both asymptomatic and symptomatic hypoglycemia].
* The mean age of the subjects was 25.2 years (18-42) with a 3:2 male:female ratio.
* CGM documented 144 hypoglycemic episodes in 32 subjects with 4.5 episodes per subject.
* The SMBG records revealed only 83 episodes in 32 subjects with 4.5 episodes per subject.
* The mean duration of diabetes was longer in patients with 90-130 episodes/100 patient years (11.7 vs 7.6 years)

**Results:**

**Graphs depicting glycemic variability In the subjects**

* The mean HbA1c of subjects with hypoglycemia unawareness was lower (7.6%) than those without hypoglycemia unawareness [7.78%] and partial unawareness [8.4%].
* The higher A1c in those with partial awareness may be related to relaxation of therapeutic glycemic targets.

**Conclusions:**

* Hypoglycemia unawareness was seen in one in four (25%) of subjects with T1DM and more than 50% of the episodes were nocturnal.
* In comparison to SMBG, CGM identified 42% more hypoglycemic episodes and hence forms an essential tool for objective assessment of hypoglycemia unawareness.
* A reasonable individualized glycemic goal in T1DM should be the lowest A1C that preserves awareness of hypoglycemia, preferably with minimal symptomatic or even asymptomatic hypoglycemia.

**References:**