



Fear of Hypoglycemia in Parents of Young Children with Type 1 Diabetes Mellitus on Insulin Infusion Pump Therapy

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Background:

- The goal of modern insulin therapy is to achieve blood sugars close to the normal range.
- Hypoglycemia occurs when patients' blood sugar levels fall below the normal range, often due to the administration of too much insulin, not eating enough food, or physical activity.
- The symptoms of mild hypoglycemia include: trembling, dizziness, nausea, sweating, and confusion. Moderate to severe hypoglycemia can result in seizures, loss of consciousness, coma, and death.
- Fear of hypoglycemia (FH) has been shown retrospectively to be associated with poor glycemic control in adults and older children with Type 1 Diabetes Mellitus (T1DM) who follow a 2 shot/day regimen.

Objective:

- Examine the association between FH and blood sugar prospectively for a sample of 18 children (ages 2 -8 years) who are managed by continuous subcutaneous insulin infusion pump therapy.

Subjects:

N = 18 families of young children with T1DM

Mean age of children = 5.3 ± 1.8 years

9 boys, 9 girls

94% Caucasian

94% from two parent families

95% from middle to upper-middle socioeconomic class

Measures:

Hypoglycemia Fear Survey (HFS-P): parent-report measure of fear and avoidance behaviors associated with hypoglycemia.

Table 1. Sample items from the HFS-P

- Behavior items:**
 Have my child eat large snacks at bedtime.
 Reduce my child's insulin when I think his/her blood sugar is too low.
 Keep my child's blood sugar higher when he/she plans to be away from me for awhile.
- Worry items:**
 Child not having food, fruit or juice with him/her.
 Child having a reaction while he/she is asleep.

Methods:

- Families were recruited from the Pediatric Diabetes Center at Cincinnati Children's Hospital Medical Center.
- Inclusion criteria: confirmed diagnosis of type 1 diabetes ≥ 6 months, child age between 18 months and 8 years, and insulin management by continuous subcutaneous insulin infusion pump ≥ 6 months.
- Parents completed an informed consent, a demographic form, and the HFS-P at study enrollment.
- Children's daily blood sugars were assessed prospectively for two weeks using a FreeStyle® home blood glucose meter provided by the study (TheraSense, Alameda, CA).

Results:

Table 2. Child's History of Hypoglycemia & Seizures

Variable:	%
Parent reported frequency of blood sugars < 60:	
5% once a day	
28% 1-2/week	
50% 3-5/week	
5% once a month	
12% once every few months	
Parent reported seizure history:	72% no

Figure 1. One sample t-tests comparing HFS-P total scores with previous research

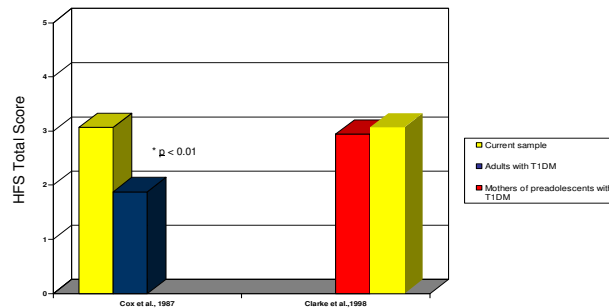
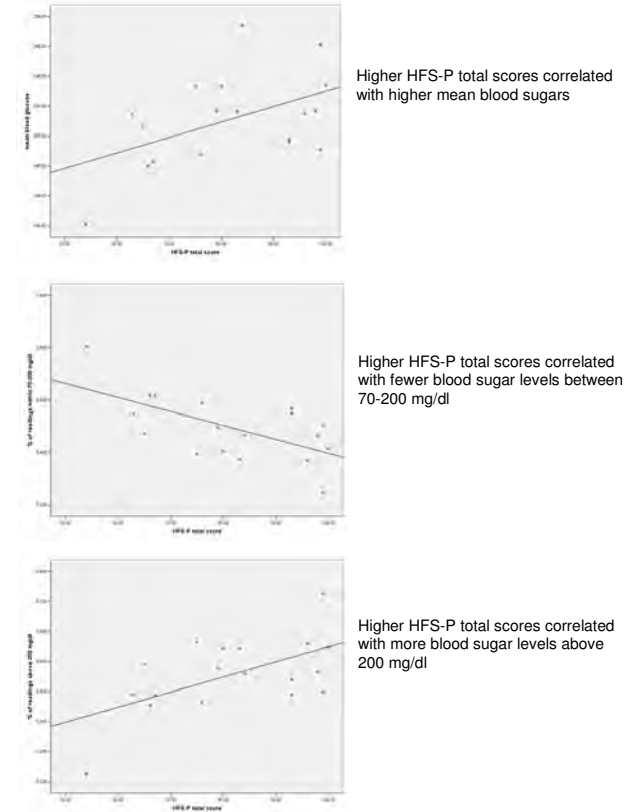


Figure 2. Correlations of HFS-P total scores with children's blood sugar



Conclusions:

- Parents of young children with T1DM expressed significant levels of concern about hypoglycemia.
- Fear of hypoglycemia may be higher among parents of children who have higher blood sugar readings.
- Health care professionals should assess parents' fear of hypoglycemia as this may be associated with their diabetes management.