Hypoglycemia in Type 1 Diabetes: The Impact on Family Members

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Disclosure to Participants
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Board Member/Advisory Panel: Sanofi, Lilly, Novo, Roche
Consultant: Dexcom, Sanofi, Novo, Abbott, Boehringer Ingelheim, Takeda
Research support: Sanofi, Locemia

Hypoglycemic Fear

- Some degree of anxiety or fear about hypoglycemia is healthy and adaptive.
- The problem occurs when fear of hypoglycemia is excessive:
  - Can lead to unreasonable efforts to avoid hypoglycemia (leading to poor glycemic control)
  - Can lead to poorer quality of life

Excessive Fear in T1D Patients

- Consider the patient who:
  - Typically underdoses prandial insulin at meals.
  - Is frequently snacking to avoid any possible lows.
  - Is taking action to raise his BG’s whenever he feels “funny”.
  - Is testing obsessively.

Excessive Fear in T1D Patients

- Hypo fear ______ losing confidence ______ in one’s body:
  - “Can I trust that my body will not betray me during this upcoming business meeting?”
  - “Can I be confident that I will be able to sleep thru the night safely?”
  - “Can I trust that my body will not go low while I am out running today?”
Excessive Fear: Contributors

- Severe hypoglycemic episode(s)
- Impaired hypoglycemic awareness
- Trait anxiety


Excessive Fear: Prevalence

- Assessment has relied primarily on the Hypoglycemic Fear Survey (HFS)
- Two subscales: Behavior and Worry
- No cut-off has ever been established
- And so, no one really knows how prevalent hypoglycemic fear may be!

Polonsky et al, 1994; Gonder-Frederick et al, 2011

Excessive Hypoglycemia Fear

- People with T1D:
  - I don’t notice the signs of hypoglycemia as well as I used to. 27.8%
  - Frightened I could have a serious hypo when I’m asleep. 29.2%
  - I can’t ever be safe from serious hypos. 19.3%

Irvine et al, 1994; Gonder-Frederick et al, 2011

Excessive Fear: Consequences

1. Poor glycemic control?
   - No consistent evidence to support this, with some studies showing a link (e.g., Anderbro et al, 2010) while others do not (Gonder-Frederick et al, 2011; Nixon and Pickup, 2011)

Excessive Fear: Differential Responses

- Low Fear
  - Low A1C
    - “Fearful and Vigilant”
  - High Fear
    - “Fearful and Avoidant”
- High A1C
  - Low Fear
  - High Fear

Excessive Fear: Consequences

A POLL: Hypoglycemic fear is associated with poor glycemic control?

- YES
- NO
**Excessive Fear: Consequences**

1. Poor glycemic control? **Not necessarily**
2. A negative impact on quality of life? **Yes**
   - SH has been linked to depression, anxiety problems, embarrassment, guilt, anger, helplessness and treatment dissatisfaction—in parents and spouses/partners as well!
   - Also, for some people, avoidance behaviors.

**Gonder-Frederick et al., 2013**

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**Excessive Fear: Differential Responses**

<table>
<thead>
<tr>
<th></th>
<th>Low A1C</th>
<th>High A1C</th>
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<tbody>
<tr>
<td>Low Fear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Fear</td>
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</tbody>
</table>

- “Unreasonably Fearless”
- “Fearful and Avoidant”
- “Fearful and Vigilant”

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**What about Partners of T1D Adults?**

- **Excessive Hypoglycemia Fear**
  - People with T1D:
    - I don’t notice the signs of hypoglycemia as well as I used to. **27.8%**
    - Frightened I could have a serious hypo when I’m asleep. **29.2%**
    - I can’t ever be safe from serious hypos. **19.3%**

- T1D partners:
  - Hypo Distress subscale **11.8%**
  - Hypo Distress subscale **22.2%**

**Fisher et al., 2015; Polonsky et al., in preparation**

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**Excessive Hypoglycemia Fear**

- T1D partners report > moderate worrying about:
  - my partner’s low BGs. **52.4%**
  - my partner’s low BGs when he/she is sleeping **47.5%**
  - my partner’s driving because of low BGs. **36.2%**
  - leaving my partner alone because of the danger of low BGs. **24.7%**

**Fisher et al., 2015; Polonsky et al., in preparation**

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**Excessive Hypoglycemia Fear**

- People with T1D:
  - Hypo Distress subscale **11.8%**

- T1D partners:
  - Hypo Distress subscale **22.2%**

**Fisher et al., 2015; Polonsky et al., in preparation**
Why Are Partners So Fearful?

1. Trauma
   - Recent severe hypoglycemia in partner $r = 0.44$
   - Implied: not feeling confident they can respond
2. Thinks partner is not taking good care $r = 0.26$
3. Thinks partner is too secretive re T1D $r = 0.26$
4. Number young children at home $r = 0.15$
5. Female $r = 0.17$

Polonsky et al, in preparation

How Hypoglycemia Fear Affects Partners

1. Depressive symptoms $r = 0.035$
2. Greater life stress $r = 0.25$
3. Marital dissatisfaction $r = 0.28$
4. T1D-related relationship conflict $r = 0.46$

AND…

Polonsky et al, in preparation
So What To Do?
Solutions

• Partner distress will dissipate when they:
  – begin to witness fewer severe lows.
  – feel confident that partner has taken action so that severe lows are now less likely
  – have an agreement with partner about what role they are to play regarding hypoglycemia
  – feel more confident they can handle emergencies

How To Accomplish All This?

1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
   – Pick a number

Pick a Number

• With your HCP, decide on a BG number at which you will take action to treat.
• Agree to always treat at that number, no matter how inconvenient. Do not delay!
• Trust the number, not your feelings!

How To Accomplish All This?

1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
   – Pick a number
   – Improve your blood glucose estimations

Improve Your BG Estimations

• For several weeks, guess before you check. Keep a written record.
• Compare “good” and “bad” guesses. What accurate cues can you discover? What about inaccurate cues you may have been using?
• Give special attention to subtle neuroglycopenic, or “brain sputtering”, cues.

Blood Glucose Awareness Training: see Cox et al, 2001
How To Accomplish All This?

1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
   - Pick a number
   - Improve your blood glucose estimations
   - RT-CGM

Sample Benefit Items (% “Much Better”)

<table>
<thead>
<tr>
<th>Item</th>
<th>CU</th>
<th>XU</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confident hypo’s can be avoided</td>
<td>48.5%</td>
<td>22.5%</td>
<td>.001</td>
</tr>
<tr>
<td>Safe when exercising</td>
<td>47.0%</td>
<td>18.6%</td>
<td>.001</td>
</tr>
<tr>
<td>Safe when sleeping</td>
<td>46.9%</td>
<td>22.5%</td>
<td>.001</td>
</tr>
<tr>
<td>Confident I can control DM</td>
<td>47.5%</td>
<td>17.6%</td>
<td>.001</td>
</tr>
<tr>
<td>Motivated to keep up my DM care</td>
<td>45.7%</td>
<td>26.5%</td>
<td>.001</td>
</tr>
<tr>
<td>Partner worried about sleeping</td>
<td>27.4%</td>
<td>9.8%</td>
<td>.001</td>
</tr>
</tbody>
</table>

How To Accomplish All This?

1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
2. Encourage a conversation between the partners, focusing on areas of responsibility
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1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
2. Encourage a conversation between the partners, focusing on areas of responsibility
   - The "I’m Fine" syndrome.
   - Negotiate an action plan for both partners.

The Conversation Between Partners

- Clear guidelines about who does what and when
- Shared planning: trips, dinners out, dealing with others
- How to deal with fears of hypos ("How do I ask you if you are low without you getting angry?")

How To Accomplish All This?

1. Work with the T1D individual to reduce the future risk of severe hypoglycemia
2. Encourage a conversation between the partners, focusing on areas of responsibility
3. Help the partner to regain confidence with new technological innovations
And What about Emergencies?

• Partner distress about lows is a BIG problem
• Partner distress will dissipate when they:
  – begin to witness fewer severe lows.
  – feel confident that partner is taking positive action
  – have an agreement with partner about what role they are to play regarding hypoglycemia
  – feel confident they can handle emergencies

Take-Home Messages

• Work with the T1D individual to reduce the future risk of severe hypoglycemia
• Encourage a conversation between the partners, focusing on areas of responsibility
• Help the partner to regain confidence with new technological innovations
Thanks for Listening!

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