Fasting the Holy Month of Ramadan in Older Children and Adolescence with Type 1 Diabetes (T1D) in Kuwait

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**Introduction:**

• Ramadan is the Holy month of fasting.
• New evolving technology in the treatment of type 1 diabetes (T1D) continues to play a critical role in normalizing daily lives of diabetic children.
• This had encouraged Muslim diabetics to pursue the practice of fasting the Holy month.
• There are limited data on fasting of diabetic older children and adolescence.
• Our aim is to investigate the feasibility and safety of children with T1D to fast the Holy month of Ramadan along with its effect on glycemic control.

**Methodology:**

• A total of 50 patients aged 10-16 years with T1DM for at least one year duration were included in the study.
• Exclusion criteria: sustained poor glycemic control, history of DKA within 3 months prior to Ramadan, recurrent hypoglycemia, unwilling to monitor blood glucose, and those with diabetes-related complications.
• Prior to the Holy month, children and their families were evaluated and educated about Diabetes management during Ramadan.

**Results:**

• Baseline characteristics of patients described in Table 1.
• Ramadan between Pump users and Non-pump users described in Table 2.
• Most common complication and cause for breaking the fast was hypoglycemia (mean blood sugar during the attacks 3.04 ± 0.31).
• Changes in HbA1c before and after Ramadan demonstrated in Figure 1 and Figure 2.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>MDI (n=22)</th>
<th>Pump (n=22)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>12.3 ± 1.9</td>
<td>13.3 ± 2.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Gender Males</td>
<td>11/50.0</td>
<td>8/36.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Duration of diabetes</td>
<td>3.2 ± 2.4</td>
<td>5.3 ± 3.1</td>
<td>0.01**</td>
</tr>
<tr>
<td>Number of fasted days</td>
<td>21.0 ± 9.0</td>
<td>23.9 ± 6.2</td>
<td>0.2</td>
</tr>
<tr>
<td>HbA1c before Ramadan</td>
<td>8.6 ± 1.5</td>
<td>8.9 ± 1.2</td>
<td>0.4</td>
</tr>
<tr>
<td>HbA1c after Ramadan</td>
<td>8.7 ± 1.3</td>
<td>8.9 ± 1.0</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Discussion:**

• Fasting for children with T1D is feasible in pump users and non-pump users.
• Most common complication and cause for breaking the fast was mild hypoglycemia.
• HbA1c after Ramadan seems to be predicted by pre-Ramadan HbA1C. However, this result should be interpreted with caution as the duration between pre- and post-Ramadan HbA1C might be less than 3 months.

**Conclusion:**

• Fasting in children with T1D above the age of 10 years is feasible and safe in both pump and non-pump users.
• Proper education and intensive monitoring of fasting children is crucial.