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 pursuit 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
- Ramadhan 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 Ramadhan demonstrated in Figure.1 and Fgure.2

Age in years	12.7 2.1
Gender	
Male	23 (46.0)
Female	27(54.0)
History of previous fasting	27(54.0)
Insulin regimen	
MDI	27(54.0)
Pump	23(46.0)
Other hypoglycemic	3(6.0)
Duration of diabetes in months	16 2.9
Days of completed fasting	20.0 9.9
HbA1c before Ramadan	8.3 1.4

Table. 1

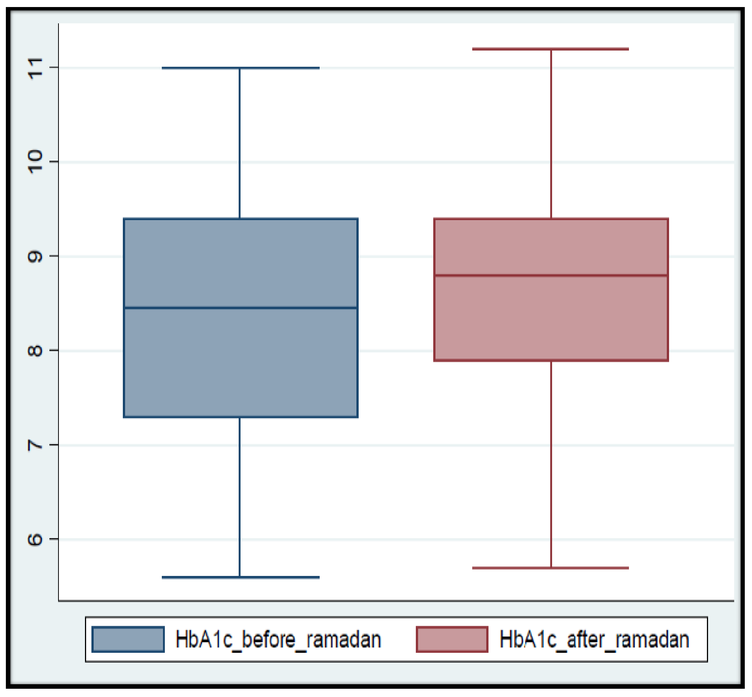

Figure. 1Changes in HbA1c before and after Ramadan

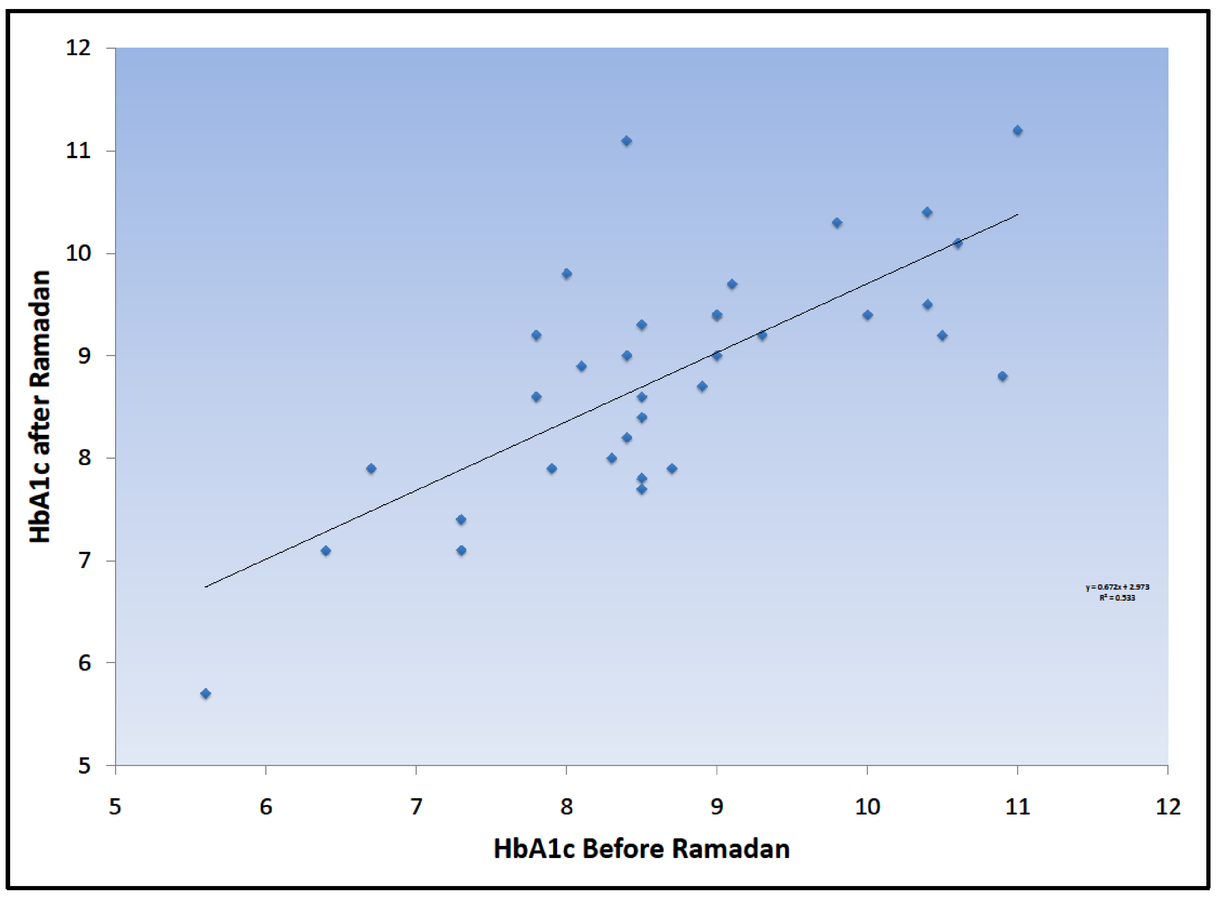

Figure. Correlation between HbA1c before and after Ramadan

Characteristics	MDI (n=22)	Pump (n=22)	*P*-value
Age	12.3 1.9	13.3 2.1	0.1
Gender (Males)	11(50.0)	8(36.4)	0.5
Duration of diabetes	3.2 2.4	5.3 3.1	0.01**
Number of fasted days	21.0 9.0	23.9 6.2	0.2
HbA1c before Ramadan	8.6 1.5	8.9 1.2	0.4
HbA1c after Ramadan	8.7 1.3	8.9 1.0	0.4
Complications during Ramadan			
DKA	0(0.0)	2(9.1)	0.5
Hypoglycemia	13(59.1)	14(63.6)	0.8
Hyperglycemia	3(13.6)	0(0.0)	0.2
Hospitalization	0(0.0)	2(9.1)	0.5
Causes for stopping fasting			
hypoglycemia	2(33.3)	9(75.0)	0.2
hyperglycemia	1(16.7)	0(0.0)	
Sick days	1(16.7)	0(0.00	
Pump Problem	0 (0.0)	1(8.3)	

Table. 2

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.

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