

Effect of packed cell transfusion on blood glucose concentrations in Beta Thalassemia Major (BTM).

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Introduction

Glycemic abnormalities are common in adolescents with BTM. Both insulin resistance and insulin deficiency share in the etiology of these abnormalities. We report the effect of packed cell transfusion on blood glucose level in real-life in a thalassemic adolescent with normal fasting glucose and oral glucose tolerance

Case and Methods

A 14-year-old African adolescent with BTM presented with frequent and disturbing nocturnal enuresis. He reported fasting blood glucose values ranging between 62 and 110 mg/dl using SGMS. His HbA1c result remained <6% during the year. We used CGMS monitoring using Medtronic Guardian Real Time in addition to SGMS monitoring (4 – 5 times daily) to assess his blood glucose changes during real life before and after his monthly packed red cell transfusion.

Results

Packed cell transfusion increased Hb level from 8.9 gm/dl to 11.8 g/dl. This increase in Hb was associated with reduction in the mean concentrations of blood glucose at all the times (Before breakfast, before lunch, before dinner and before bedtime).

Conclusions

PCT has a beneficial effect on glucose homeostasis in thalassemic patients. This may be due to increasing insulin sensitivity by improving oxygenation

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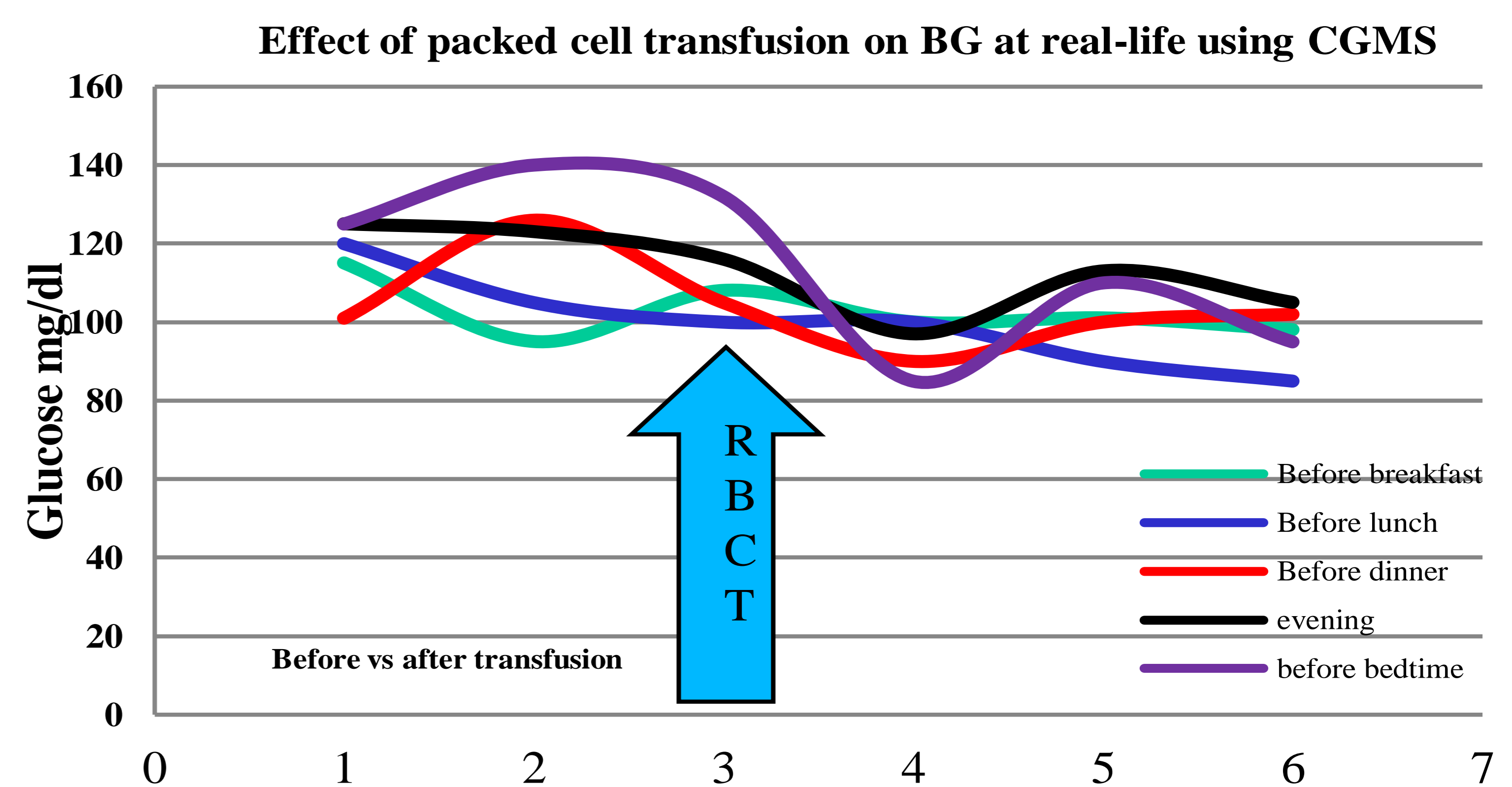


Results

Effects of PCT on blood glucose (mg/dl) in a patient with BTM

	Before breakfast	Before Lunch	Before Dinner	Before Bed-time
Before PCT	106	108	110.7	132
After PCT	99.6	92	97.3	97

	Average BG	Highest BG	Lowest BG
Before PCT	115.7	132	95.5
After PCT	100	123.2	85.7



Discussion

In this patient, correction of Hb level by PCT from 9 gm/dl to 11.8 g/dl resulted in significant decrease in BG values all over the day . This denotes that improving the oxygen carrying capacity by PCT has a beneficial effect on glycemic control probably due to decreasing insulin resistance associated with anemic hypoxia before PCT. This is the first report in literature to show the effect of PCT on blood glucose in real life in these patients.

