CORRECTION

Correction to: Mealtime insulin bolus adherence and glycemic control in adolescents on insulin pump therapy

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The data under Abstract and in the Results section of the original version of this article, unfortunately, contained errors. The incorrect data are shown in italic and enclose with parentheses next to the correct data that are in bold.

Abstract

Poor self-management contributes to insufficient glycemic control in adolescents with type 1 diabetes (T1DM). We assessed the effects on glycemic control of *adherence* to self-measurement of blood glucose (SMBG) and insulin boluses in 90 adolescents with T1DM on insulin pump therapy over a 2-month period. We compared the number of insulin boluses and SMBGs around main meals to the "gold standard" of optimal diabetes management (SMBGs and a bolus before each main meal and SMBG before bedtime). The mean (95% CI) HbA1c levels were 2.9(1.7 to 4.0) mmol/mol lower for every additional insulin bolus and 3.1(1.6 to 4.5) mmol/mol lower for every additional SMBG. Patients performing SMBG and bolusing around each main meal had considerably lower HbA1c levels than those unable to do (95% CI for difference **3.5 to 13.4 mmol/mol** *(4.3 to 10.4 mmol/mol)* and **6.6 to 16.5 mmol/mol** *(11.5 to 20.1 mmol/mol)* respectively). For each additional *mealtime* bolus/day, the odds ratio of achieving target HbA1c levels of $\leq$58 mmol/mol was 6.73(95% CI 2.94–15.38), after adjustment for gender, age, diabetes duration, and affective responses to SMBG in a multiple logistic regression model.

Conclusion: Glycemic control in adolescents with T1DM on insulin pump therapy is strongly dependent on *adherence* to insulin boluses around *mealtimes*.

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Results

In a linear regression model, the 59 patients (65.6%) who bolused around every main meal according to the gold standard had considerably lower HbA1c levels than the 31 patients (34.4%) who were unable to do so (estimated mean difference 11.6, 95% CI 6.6 to 16.5 mmol/mol). This association remained unchanged after adjustment for age, sex, diabetes duration, and affective responses to SMBG in a multiple regression model. This beneficial effect of mealtime bolusing was strongest for the evening meal insulin bolus: administration of an insulin bolus at every evening meal was associated with an estimated mean (95% CI) HbA1c decrease of 43.2 (21.6 to 64.7) mmol/mol compared to children who did not perform evening mealtime bolusing.

The 42 patients (47%) who recorded a glucose measurement before every *mealtime* had significantly lower HbA1c values (mean difference **8.5, 95% CI 3.5 to 13.4 mmol/mol**) *(8.5, 95% CI 4.9 to 12.2 mmol/mol)* than those who failed to do so. A similar effect was found in patients who recorded an SMBG before sleep compared to those who did not (mean difference in HbA1c **8.8, 95% CI 3.7 to 13.9 mmol/mol**) *(7.3, 95% CI 4.3 to 10.4 mmol/mol).*