

Improved Glycemic Control in a Pregnant Woman with Type 1 Diabetes Mellitus Utilizing Insulin Infusion and Carbohydrate Counting: A Clinical Case Report

Manuela Cimorelli¹, Benedetta Masserini², Benedetta Rivolta², Lorena Bolesina¹, Elisa Pisocri¹, Irene Bernardi³, Nadia Cerutti⁴

¹Dietista, SC nutrizione clinica, diabetologia e malattie endocrine, ASST Pavia

²Dirigente medico, SC nutrizione clinica, diabetologia e malattie endocrine, ASST Pavia

³Medico in formazione specialistica, SC nutrizione clinica, diabetologia e malattie endocrine, ASST Pavia

⁴Direttore f.f. SC nutrizione clinica, diabetologia e malattie endocrine, ASST Pavia

Background and aims

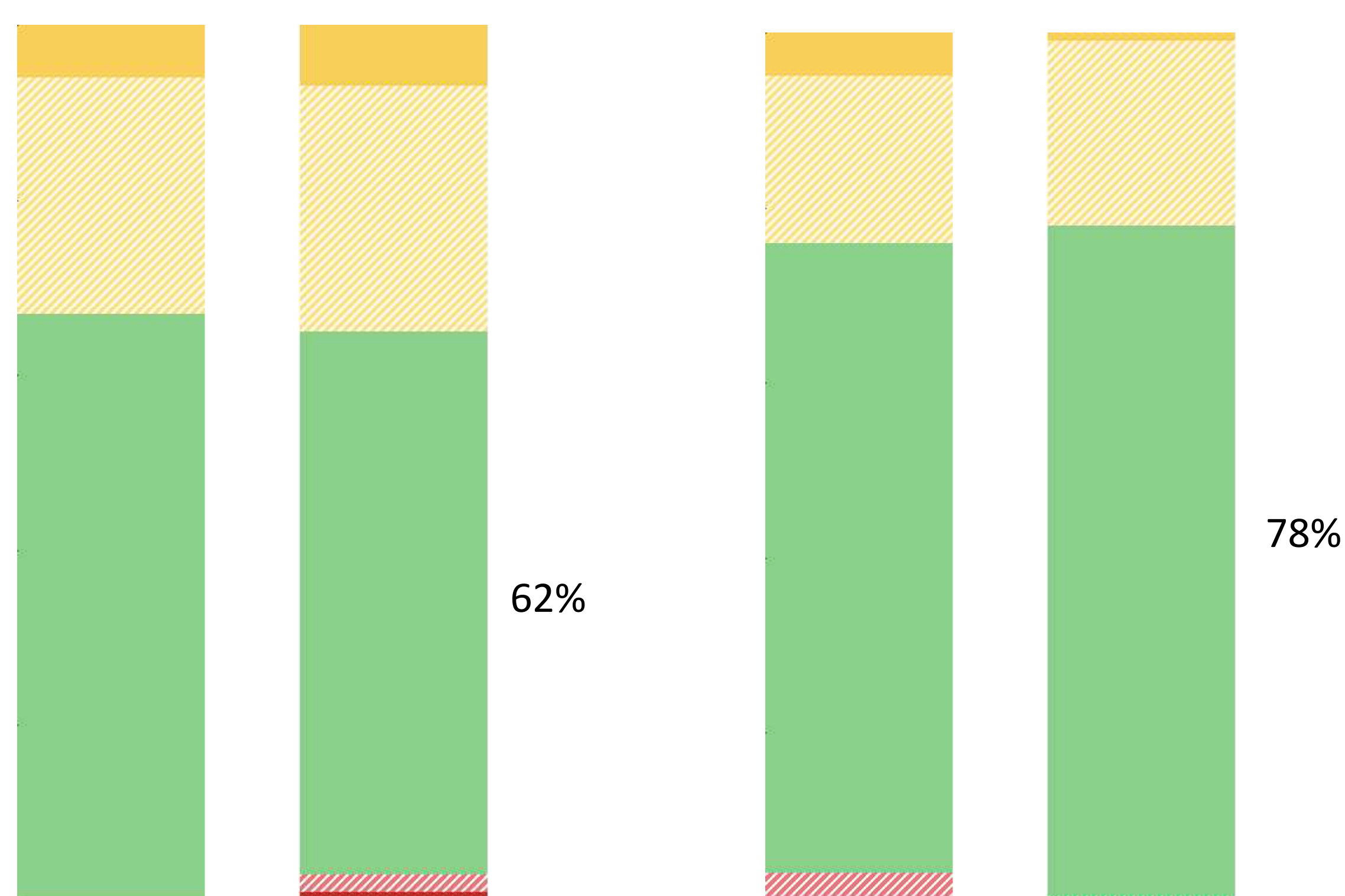
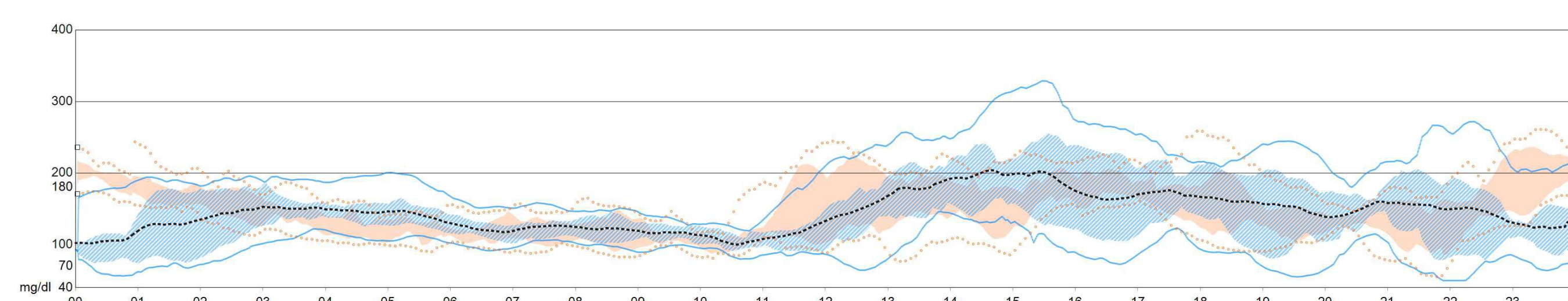
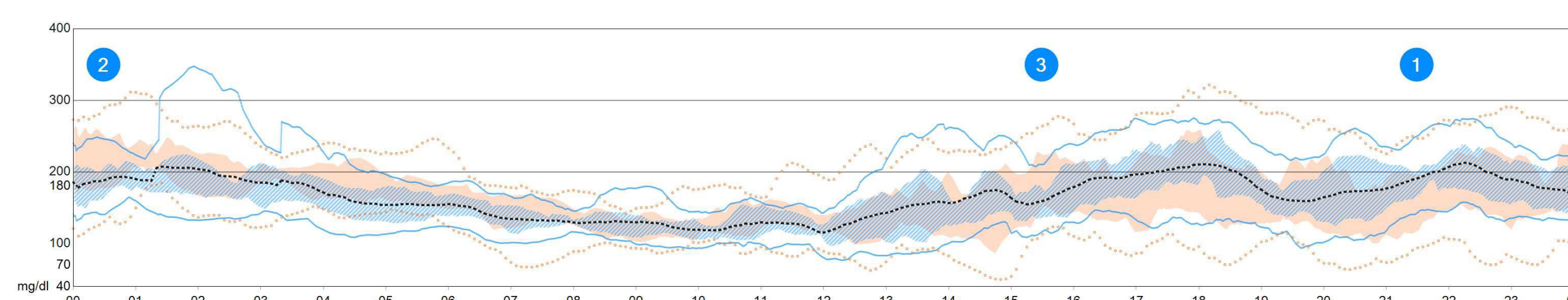
Managing type 1 diabetes mellitus (T1DM) during pregnancy is crucial for optimal maternal and fetal outcomes. This clinical case report aims to describe the successful management of a pregnant woman with T1DM, who utilized an insulin infusion pump and underwent carbohydrate counting training.

Methods

A 18-year-old woman diagnosed with T1DM at the age of 13 underwent SAP Medtronic 780 G placement in our unit in September 2022 and had already started a CHO counting course shortly before. She became pregnant in February 2023. Immediately prepregnancy data showed fasting blood glucose of 94 mg/dl and glycated hemoglobin (HbA1c) of 7.9%. Early in pregnancy (7 March), fasting blood glucose was 114 mg/dl and HbA1c was 7.7%. In the twentieth week of pregnancy fasting blood glucose was 75 mg/dl and HbA1c improved to 6.9%. The patient experienced no episodes of hypoglycemia.

Results

The patient continued the CHO counting course and was also provided with a fixed carbohydrate content regimen of 2000 kcal during the first trimester and the beginning of the second trimester; she ate about 1600 calories a day before pregnancy. She had a weight gain of 1 kg at 20 weeks of pregnancy, with a previous BMI of 26.8 kg/m². Utilizing an insulin infusion pump, the patient achieved a time in range of 78% at 20 weeks of pregnancy.



Conclusions

This clinical case highlights the importance of personalized management strategies for pregnant women with T1DM. Utilizing an insulin infusion pump and undergoing carbohydrate counting training contributed to improved glycemic control in this patient. The patient's glycemic parameters, above all HbA1c, demonstrated progressive improvements throughout pregnancy. This case report emphasizes the potential benefits of tailored therapeutic approaches for optimizing diabetes management during pregnancy.

