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A New “Twist” on Insulin Pen Administration Errors

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To the Editor

We report 2 case studies of a previously unreported type of insulin pen injection error and highlight the need to assess a patient’s or caregiver’s injection technique as a potential source of poor glycemic control.

Case One

The patient is a 91-year-old female with a 10-year history of type 2 diabetes. Two years ago, despite use of multiple oral hypoglycemic agents, her glycated hemoglobin (HbA_{1c}) remained at 9.2% (77 mmol/mol), and her home glucose levels were in the mid-200 mg/dL (approximately 11.1 mmol/L) range. Her caretaker was educated on how to administer insulin glargine using a pen device. On 10 units of insulin glargine per day, the patient’s glucose levels were in the low 100 mg/dL (approximately 5.5 mmol/L) range and her HbA_{1c} remained at 7% (53 mmol/mol). At her recent visit, the morning and afternoon glucose levels were elevated to the mid-200 mg/dL range (11 mmol/L). Although the first instinct was to increase the insulin dose, it was noted that the patient had a new caretaker. On questioning, the caretaker described giving the insulin appropriately. To double-check, the caregiver was given an insulin pen and asked to demonstrate what she had been doing. The caregiver put a needle on the pen, dialed to 10 units, pushed the needle into the injection pad and then proceeded to dial back to zero. When hired, the new caregiver had told the patient and the patient’s family that she was experienced with assisting diabetes patients with insulin injections. No one actually assessed her actual knowledge or technical abilities.

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DISCLOSURE

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Case Two

The patient is an 89-year-old male with a 22-year history of type 2 diabetes. He had moderately good glycemic control on multiple oral agents until 6 months ago, when his glucose levels increased to >300 mg/dL (>16.6 mmol/L). In addition, he had slowly worsening memory. Following discussions with the patient's family and homecare nurse, it was determined that he would be able to consistently give himself a daily injection of insulin glargine using an insulin pen. Over the next few months, his glucose levels decreased to the mid-100 mg/dL range (approximately 5.5 mmol/L). Recently, his homecare nurse reported that the patient's glucose levels had become more variable, with some being in the 100 mg/dL range (approximately 5.5 mmol/L) and some being in the 300 mg/dL range (approximately 16.6 mmol/L). The nurse reported that when he observed the patient's injection technique he found that the patient put the needle on the insulin pen, dialed his dose to 14 units, put the pen needle into the skin, and then proceeded to dial the pen back to zero.

Comment

The type of insulin administration errors presented above, with the patient or provider believing that twisting and turning the dial on the pen from the number chosen back to zero would deliver the insulin, represents a previously unreported technique problem. These 2 cases demonstrate the importance of assessing and observing a patient's or caregiver's insulin injection technique before altering the insulin dose. As we discuss in our presentation of other types of insulin administration errors (1), when a patient's glycemic control remains poor or variable, before automatically increasing insulin doses, the healthcare provider should observe the insulin injection technique (syringe or insulin pen) to rule out poor injection technique as the source of poor or variable glycemic control.

References

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