

A pen device - related insulin dosage error

Medication errors with insulin account for a significant number of errors are found in clinical practice.^[1] The insulin dosage prescriptions are not always adhered to clinical practice, although it is unknown whether patients on pen devices have a better compliance with insulin doses.^[2] We report an innovative method devised by a patient on insulin pen device (NovoPen 3) that resulted in confusion with insulin dose adjustment and uncontrolled blood glucose.

A 61-year-old gentleman with Type 2 diabetes since 21 years, post-renal transplantation on multiple immunosuppressive drugs and mild graft dysfunction was referred to endocrine services since his plasma sugars were uncontrolled (300-350 mg/dL) on high insulin doses. (more than 200 IU/day). His current admission was for a recurrence of resistant urinary tract infection. He was hypertensive and had moderate non-proliferative diabetic retinopathy and mild peripheral neuropathy.

The patient was self-administering insulin in a split-mix pattern with a NovoPen 3 for Actrapid (regular insulin) and 40 IU/mL disposable syringe for Monotard (lente insulin). The storage, insulin dosing and insulin administration technique were confirmed by a trained nurse educator. During one of the sessions, the nurse educator noticed that one of the Actrapid Penfills was cloudy. On close questioning the patient confessed that he was injecting Monotard (40 IU/mL) from a vial into the Penfill cartridge (100 IU/mL) i.e., he was receiving 0.4 units of insulin for every 1 unit dialed in the NovoPen. This strategy had some anticipated benefits for this patient in terms of insulin delivery with a relatively painless and 'precise' method and cost saving.

Pen insulin delivery devices have been hailed for accuracy, convenience, flexibility, perceived clinical efficacy, and quality of life in clinical studies.^[3,4] Although the instructions for use and storage of the pen devices and insulin cartridges are described in instruction manuals, errors related to patient manipulation of cartridges are not mentioned.

To our knowledge, this is the first reported case of insulin cartridge tampering resulting in insulin under dosage. Health care workers must be aware of this potential problem and cartridges should be checked during each visit in patients on insulin pen devices. Further additional warnings should be included in instruction manuals to forbid tempering with the pen device.

(Actrapid, Monotard and Penfill are registered trademarks of Novo Nordisk)

References

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