

Insulin Safety January 2011

Introduction

Insulin is a high risk, high consequence medicine. Nationally, it is one of the medicines most commonly associated with medication incidents leading to severe harm or death¹

Why are there so many errors made with insulin?

There are lots of reasons. Individual patients vary widely in their physiological response to insulin and so insulin dosing, regimens and type of administration device are tailored individually for patients to ensure optimum blood glucose control. There are many different types of insulin available, varying in composition (eg proportion of soluble: longacting insulin) and delivery mechanism. Insulins often have similar sounding names, and use a number to describe the composition - which can be confused for the dose. Insulin abbreviations on prescriptions can easily be misread or misinterpreted.

Actions for ALL staff

Ensure you are familiar with the key characteristics of insulin types/ brands, products available, appropriate doses and the requirement for regular monitoring of patients.

Involve the patient. Even if self-administration of insulin is inappropriate, patients can help verify correct preparation and doses before prescribing, dispensing, administration.

Use the patient's own insulin in hospital where possible. If not, order the specific insulin from pharmacy – do not switch between products.

Label insulin with the patients name and CHI number.

Store the insulin vial / pen / cartridge in use out of the fridge for up to one month – keep this in the patient's own medication locker (MyMeds wards) or a separate area of the medicine trolley.

Store unopened insulin in a refrigerator.

Return any insulin no longer required to pharmacy.

Ensure availability of insulin products on hospital sites via pharmacy/ emergency cupboards/specialist wards – avoid holding lots of different insulins on individual wards.

Perform blood glucose monitoring prior to administration of insulin in hospital (there is slightly different advice for primary care) to reduce the risk of hypoglycaemia. See the NHSGGC Diabetes Guidelines handbook for minimum monitoring requirements.

Additional actions are described overleaf in relation to specific incidents.

Purpose of this bulletin

This bulletin focuses on errors involving insulin and practical advice - to all staff involved in prescribing, dispensing or administration of insulin – to improve insulin safety. Please discuss it within clinical teams to promote good practice. The focus of this bulletin is Acute care but many of the recommendations apply to primary care.

An insulin training package with a specific focus on insulin safety is available at

<http://www.healthcare.co.uk/nhsdiabetes>

For guidance and advice on reporting medicines incidents contact your Clinical Risk Manager or pharmacist.

Please email any comments to

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Examples of incidents illustrating learning points

Wrong product selection

Novomix® instead of Novorapid® was dispensed for an inpatient by the hospital Pharmacy Department. The error was identified at the final check prior to handing the medication to the patient.

Mixtard 30® was prescribed on a discharge prescription but Novomix 30® cartridges were supplied and labelled as Mixtard 30®.



Learning points

Insulin products, especially if from the same manufacturer, often have similar sounding brand names. These may vary widely in onset and duration of action. This also illustrates the importance of the check on the ward before handing a medicine to the patient.

Wrong dose prescribed

A patient was prescribed 300 units of insulin twice daily. The background was that the GP repeat prescription stated: Insulin 100units/ml 3ml pen twice a day. Only a proportion of the pen was meant to be administered to the patient each day but this repeat prescription was misinterpreted as 300 units twice a day. The error was identified by the Diabetic Consultant on day three of admission.

25 units Humalog® was incorrectly prescribed for a patient who was usually on Humalog mix 25®. The '25' in the name of the product was mistaken for the number of units to be given.

Learning points

1. Take an accurate medication history - full name, dose, timing of each insulin dose.
2. Specify the patient's usual device on the prescription.
3. Prescribe as 'units' in full with a space between numbers and dose eg '12 units'. Do not abbreviate as this is often associated with ten-fold errors (eg u can be mistaken for 0)
4. Ensure that insulin is prescribed both on the patient's main medicine Kardex and on the insulin prescription chart (if available). Where insulin charts are used, prescribe the exact required dose on the insulin prescription chart and write the Kardex dose 'as charted'.

Administration errors

A patient was administered 40 units actrapid insulin instead of 4 units. The nurses involved in checking and administration of the insulin incorrectly read the insulin syringe markings resulting in a ten fold overdose.

A diabetic surgical patient was commenced on an insulin sliding scale. Sodium chloride 0.9% was prescribed to run with insulin instead of glucose infusion.

Learning points

1. Verify the amount and type of insulin with the patient if possible BEFORE administering it.
2. Only use specific insulin syringes for administration of insulin from a vial and ensure you know how to use these correctly.
3. ALWAYS ensure a second independent check of insulin doses prior to administration.
4. Glucose should be used for all intravenous insulin infusions except for patients admitted with diabetic ketoacidosis. See the new NMSGC Diabetes Guidelines handbook (available on Staffnet) for clear advice on insulin infusions.

National Patient Safety Agency. 4th report from the Patient Safety Observatory

¹Safety in doses: medication safety incidents in the NHS. London 2007

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