Advice for Pharmacists

High strength, fixed combination and biosimilar insulin products: Minimising the risk of medication error

Until recently, all insulin was only available as 100 units per ml. However, several new insulin products have been launched in the UK market. Three high strength insulins which have concentrations greater than 100 units/mL are now available;

Details of the new products are as follows:

Active substance	Brand name	Strengths available	Administration devices
Insulin degludec	Tresiba▼	100 units/mL	FlexTouch prefilled pen; cartridge ('Penfill' for use in Novo Nordisk reusable pen)
		200 units/mL	FlexTouch prefilled pen
Insulin degludc and Liraglutide	Xultophy▼	100 units/mL of insulin degludec and 3.6 mg/mL of liraglutide	Prefilled pen
Insulin lispro	Humalog	100 units/mL	KwikPen prefilled pen; vial; cartridge
		200 units/mL	KwikPen prefilled pen
	Humalog Mix25	100 units/mL	KwikPen prefilled pen; vial; cartridge
	Humalog Mix50	100 units/mL	KwikPen prefilled pen; cartridge
Insulin glargine	Lantus	100 units/mL	SoloStar prefilled pen; vial; cartridge
	Toujeo	300 units/mL	SoloStar prefilled pen
	Abasaglar▼ (Bisosimilar)	100 units/mL	KwikPen prefilled pen; cartridge (for use in Lilly reusable pen)

Healthcare providers involved in prescribing, dispensing and administering of these insulins within primary and secondary care need to be aware of the possible risks of medication errors with high strength, fixed combination and biosimilar insulin products already on the market.

Checklist

☐ **-** Pharmacists are aware that insulins are now available in different strengths.

☐- Ensure that storage arrangements for high-strength insulins facilitate correct selection of the medicine and avoid confusion with other medicines

☐ - Before dispensing, check the prescription is legible, that the type of insulin is clear (Prescription should contain both the brand and the strength of the insulin intended)

☐ - Ensure the dose is unambiguous – Contact prescriber if in doubt

☐ - Check that patients and carers are able to read the strength of insulin and the dose counter of the pen device before dispensing the medicine.

☐ - Check that patients are adequately trained on how to use their new pen.

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☐ - If the patient has been transferred from another pen device, highlight the differences in design between the two devices.

☐ - Patients who are blind or with poor vision must be instructed to always get assistance from another person who has good vision and is trained in using the insulin pen device.

☐ - Tell patients to closely monitor their blood sugar levels when starting a medicine containing insulin and a non-insulin active substance and in the weeks after

☐ - Advise the patient the insulin is supplied in a pre-filled pen and it should only be used with this device. Reinforce that a syringe should never be used to withdraw insulin from a pre-filled pen otherwise severe overdose can result

☐ - Ensure patients are aware that there are different strengths of insulin where appropriate (e.g. Tresiba (insulin degludec) comes in both 100units/ml and 200units/ml).. Inform the patient that the pen device will calculate the dose of insulin that they need irrespective of strength, so they simply need check the dose-counter window of the pen device which displays the dose in units, and make sure this matches the dose they wish to administer.

References

1. National Institute for Health and Care Excellence (NICE). (2018, February 2018). *Safer insulin prescribing*. Retrieved from https://www.nice.org.uk/advice/ktt20/chapter/evidence-context
2. European Medicines Agency. (2015, November 27). *Guidance on prevention of medication errors with high-strength insulins.* Retrieved from https://www.ema.europa.eu/documents/medication-error/insulins-high-strength-guidance-prevention-medication-errors_en.pdf
3. NHS Improvement. (2016 , November 16). *Risk of severe harm and death due to withdrawing insulin from pen devices*. Retrieved from https://improvement.nhs.uk/news-alerts/risk-severe-harm-and-death-withdrawing-insulin-pen-devices/

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