Injectable Therapies in Diabetes

Diabetes Specialist Nurse

Joyce Robson

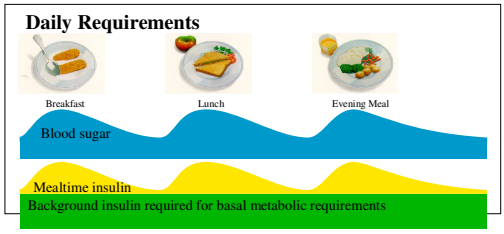
Learning Outcomes

- Understand the place of injectible therapies in diabetes
- Understand when patients may require insulin therapy
- Consider insulin profiles and regimes
- Understand when patients may require GLP1 inhibitors
- Safe practice and injectible therapies in diabetes

When injectibles therapies are used in diabetes?

- Type 1 diabetes – 1st line – no alternative to insulin – lack of insulin leads to burning of body fats and ketone production > ?DKA
- Type 2 diabetes - insulin resistance → loss of insulin effectiveness → poor response to oral agents. Injectibles then required- Variable time line.
  - May require insulin or Glucagon Like Peptides 1receptors agonists (GLP-1s) by injection

Normal Daily Insulin Profiles



For regular eating pattern you require a background of insulin and three bolus doses of insulin.

This happens in health with no diabetes.

Common insulin regimes for

- **Match insulin profile to the needs of individual patients and follow GGC guidelines**
- **Once daily intermediate or long acting** – **background insulins** eg. Humulin I, Insulatard, Insuman basal, Levemir, Lantus – May be used in combination with oral hypoglycaemic agents
- **Twice daily mixed insulin**
  e.g. HumulinI, Novomix 30, Insuman Comb 50 may be used - if not achieving adequate glycaemic control on once daily regime

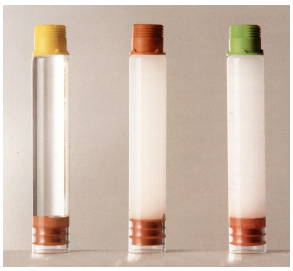
Common Insulin regimes cont.

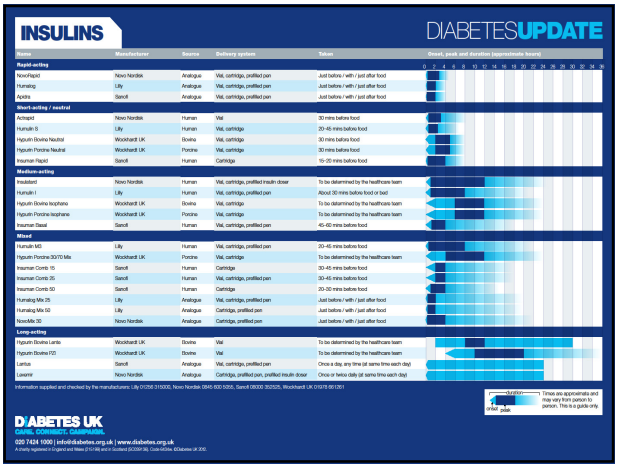
- **Three times daily mixed insulin**
  eg. Humalog Mix 50, Insuman Comb 50 – If patient is highly insulin resistant
- **Multiple dose injections /basal bolus**
  eg. Lantus or Levemir plus Novorapid or Humalog
- **Insulin Pumps**
  Constant infusion of rapid acting insulin

Types of Insulin?

Types of insulin:

- short acting (clear)……
- rapid acting (clear)……
- **intermediate** (cloudy) ……
- **"Fixed" (bi phasic) mixtures** - combination of short and medium insulin (cloudy) e.g ……
- **Longer acting insulin** analogues (clear) e.g ……..
- **New insulins 300iu strength**





Insulin

- **Patients with T2DM who have concurrent problems, may require insulin urgently – for example…….**
- Steroid therapy
- Acute infection
- Pre or post surgery
- Gestational diabetes
- Type 2 diabetes in pregnancy

Insulin therapy – getting it right.....

- Injection technique / timing /compliance
- Carbohydrates
- Avoiding and treating hypos appropriately
- Self managing where possible
- morning insulin → lunch / tea time results
  evening insulin → supper / breakfast results

Stable blood sugars ➡ improved outcomes

Getting it wrong.....

- Delivery devices
- Withdrawing insulin from pen devices
- Sharps disposal
- Insulin prescriptions
- Communication pathways
- Patients fasting

Injectable Therapies - **GLP1**

- GLP-1 - Incretin gut hormone
- **Used only in Type 2 diabetes**
- 3rd line medication although can be used earlier in treatment algorithm
- Useful if insulin needs to be avoided – eg taxi drivers, HGV drivers

GLP1 – how do they work?

- **Increases insulin production** when blood glucose levels are high.
- **Reduces insulin production** when blood glucose levels are low…….**Results in →No hypos** unless on another agent for example gliclazide
- Slows down speed of stomach emptying →reduce appetite → *****weight loss*****

GLP1 currently in use

- exenatide (Byetta) twice daily injection
- exenatide (Bydureon) once weekly injection
- lixisenatide (Lyxumia) Once daily injection.
- liraglutide (Victoza) once daily injection
- dulaglutide (Trulicity) Once weekly injections
- Degludec/liraglutide (Xultophy) once daily insulin/GLP1 mixture

side effects of GLP1

- Nausea and GI upset can occur on initiation of treatment but usually settles
- Rare side effect of pancreatits
- Reduction of appetite ➡ Weight loss

Injection technique for insulin and GLP1 agents

- DSN support initially towards patient self managing
- Use of Injection prompt sheets
- Expel 2units prior to injection – Why?
- Size **4 or 5mm** needles now - **no need to pinch** 90 degree angle
- Rotate sites / Why?
- Encourage patients not to resheath or -reuse needles

Good injection techniques

- If DN dependent → syringe/needle if available in vial form, to minimise risk of needlestick injuries.
- If required to use a pen device encourage patient to remove needle, or use a BD safe clip
- Observe GGC policy – Administration of Insulin by Injection and Blood Glucose Monitoring, District Nursing

Further Learning

- 5 Modules available on Learn Pro
- Contact diabetes team if any concerns or need advice

Any Questions???

Thank you

Thank you