Insulin initiation in Type 2 Diabetes

NHS
Surrey Downs
Clinical Commissioning Group

Consider insulin therapy if other measures do not keep **HbA1c ≤ 59 mmol/mol (≤ 7.5%) OR** individualised target agreed with patient

- See points to check before initiating insulin
- Discuss benefits and risks of insulin treatment
- Start insulin in preference to additional oral medication in symptomatic hyperglycaemia on dual therapy, unless there is strong justification not to

Aim for target HbA1c while minimising risk of hypoglycaemia & weight gain

Before initiating insulin CHECK:

- ✓ If diet, and exercise are optimised
- ✓ Adherence to all medication
- ✓ Therapy for co-morbidities is optimised
- ✓ Patient preferences and lifestyle
- ✓ Would patient benefit from attending a structured education course (DESMOND)
- ✓ If HbA1c target is too low

AND

- ✓ Review patient's blood glucose profile

Usual first line therapy:

Isophane insulin (NPH insulin) once daily before bed

(Humulin I, Insulatard or Insuman Basal)

OR Long-acting Insulin analogue (see advice on when to use):

Insulin glargine (Lantus) **or Insulin determir** (Levemir) **once daily**

- Usual starting dose is 10 units (start low and go slow)
- Less insulin may be required in elderly, active, thin patients and more in the overweight and underactive
- If overnight hypoglycaemia occurs, review dose of insulin and/or change the time of injection to the morning
- Continue on other hypoglycaemic therapy, but review use of sulphonylurea if hypoglycaemia occurs with insulin plus sulphonylurea

Basal insulin regimen

Insulin is not a substitute for healthy eating, activity and weight control

Initiate with an **educational programme** encompassing:

- ✓ Dietary management
- ✓ How to self monitor blood glucose; & what action to take with different blood glucose levels
- ✓ Management of hypoglycaemia
- ✓ How to seek specialist help

Dose titration

- Titrate dose against morning fasting glucose
- Change doses in increments of 10–20% (eg: 2–4 units) at intervals of 3 to 5 days
- If necessary give isophane insulin twice daily

When to use a long-acting analogue

For most people with type 2 diabetes, analogue insulin offers no significant clinical advantage and is much more expensive. Analogue insulin should be considered if :

- The person can not use the delivery device to inject isophane insulin
- The person's lifestyle is restricted by recurrent symptomatic hypoglycaemic episodes
- The person needs help to inject insulin &could reduce the number of injections with a long-acting analogue insulin.

Once daily basal insulin regimen may be appropriate in the following people:

- Insulin-resistance due to obesity
- Those anxious about injections
- With high blood glucose overnight and in the morning, which falls with daily activities
- Reliant on someone else to administer their insulin

If significant hyperglycaemia after meals, or glycaemic control not achieved (particularly if HbA1c ≥ 75mmol/mol (≥ 9%) on basal insulin

Biphasic insulin twice daily

(Humulin M3, Insuman Comb)

OR If short-acting insulin analogue more appropriate:

Biphasic insulin lispro twice daily (Humalog Mix [25 or 50]) **OR**
Biphasic insulin aspart twice daily (Novomix 30)

- Once daily administration is an option
- Continue on other hypoglycaemic therapy, but review use of sulphonylurea, particularly in patients on biphasic insulin aspart/lispro
- Less suitable for people with an erratic lifestyle

Pre-mixed insulin regimen

Consider pre-mixed preparations that include short-acting insulin analogues, if:

- a person prefers injecting insulin immediately before a meal
- hypoglycaemia is a problem,
- blood glucose levels rise markedly after meals.

OR

ADD IN (to basal insulin)
Short-acting soluble insulin before meals

Human soluble insulin (Humulin S or Insuman Rapid)

OR If insulin analogue appropriate:

ADD IN (to basal insulin) before meals
Rapid-acting insulin lispro (Humalog) **OR Rapid-acting insulin aspart** (NovoRapid)

- Sulphonylurea therapy should be stopped

Basal bolus insulin regimen

Basal bolus insulin regimen may be appropriate in the following people:

- Those who need flexibility because of an erratic lifestyle, travel across time zones or sport
- Those who need to optimise glycaemic control because of complications, illness or a wound
- Those who are preparing for, or who are pregnant

Over intensification of treatment with insulin to HbA1c below 59 mmol/mol (7.5%) may be associated with serious hypoglycaemia, reduced quality of life and increased mortality in older patients or those with long standing type 2 diabetes

Patients prescribed insulin also require:

- Pen needles (length usually 4-6mm)
- Smaller diameter needles - causes less pain on injection
- Needle clipping device, or yellow 1L sharps bin and advise on sharps disposal
- Sufficient blood glucose monitoring strips
- Blood lancets
- Insulin passport and information booklet
- Information on driving when on insulin

Click here for release profile of insulins

References: Management of Type 2 diabetes NICE Clinical Guideline 87. May 2009
Management of Diabetes. A national clinical guideline 116. March 2010 SIGN.
Which insulin, regimen and device in type 2 diabetes? DTB 2010; 48(12):134-138.
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