PITstop™
for Diabetes

PITstop insulin: general rules

Starting insulin - working out the initial total daily dose

Multiply weight (kilogrammes) by 0.2. Multiply weight (kilogrammes) by 0.1 for people weighing 50 kilogrammes or less or if considered elderly / frail.

Titration: general rules

1. Consider the insulin and its time-action profile to know when to set a target blood glucose range
   a. Bedtime human NPH insulin → morning / fasting
   b. Morning long-acting analogue insulin → morning / fasting
   c. Lunchtime rapid-acting insulin → pre-eve meal
   d. Pre breakfast pre-mixed insulin → pre eve meal
   e. Pre eve meal pre-mixed insulin → morning / fasting
2. Agree target blood glucose range in line with individual HbA1c target.
3. Test at the agreed time for three days. If above the target increase basal and pre-mixed insulin by 2 units and rapid-acting insulin by 1 unit.
4. Assess confidence to continue to self-titrate every three days until reached target range, or recommend stopping and reviewing at 0.5units / kg.

Down-titration of insulin or sulfonylureas

1. Agree a pre-meal blood glucose range in line with their HbA1c target. Examples:
   - 5 - 6.5mmol/l for HbA1c target of 53mmol/mol
   - 10 - 12mmol/l for HbA1c target of 86mmol/mol

The bottom figure identifies the lowest blood glucose (BG) level considered suitable.

2. Highlight the bottom figure as the 'alarm blood glucose'. If dropping below this level, insulin/ sulfonylurea needs to be reduced. For insulin, follow the titration general rules, but reduce the insulin rather than increase it.

Insulin problem solving

Recurrent hypoglycaemia requires a total insulin reduction of 20%.
Changing from an area of lipohypertrophy requires at least 10% total insulin reduction.

Insulin intensification – optimising the basal insulin is critical, before intensifying the regimen

Changing to a different insulin regimen requires a dose reduction of 10% (follow manufacturer's advice for Toujeo, Abasaglar and Semglee). When adding any prandial insulin (including pre-mixed) stop sulfonylureas.
If using two different insulins ensure the injection devices are easily recognised (i.e. different colours).
Adding a bolus to a basal insulin regimen (basal plus) – working out the initial dose.
Option 1: start with 4 units (Owens et al, 2009).
Option 2: start with 10% of the basal insulin dose (Edelman et al, 2014)

Changing to a basal bolus regimen

Work out the current total daily dose of insulin and reduce by 10%.
Divide the revised total daily dose by two. One half will be the basal starting dose and the other half needs to be divided by three to calculate the three bolus doses. If only requiring two bolus doses add the unused bolus dose to the basal insulin dose.

References

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Edelman et al (2014) AUTONOMY: The First Randomized Trial Comparing Two Patient-Driven Approaches to Initiate and Titrate Prandial Insulin Lispro in Type 2 Diabetes, Diabetes Care, 37(8): 2132-2140

Owens et al. (2009). Algorithm for the introduction of rapid-acting analogues in patients with Type 2 Diabetes on basal insulin therapy. *Practical Diabetes International*. 26(2):70-77.

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Programme for Injectable Therapy