

RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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Initiation of insulin in type 2 diabetes

Approximately 30% of patients with type 2 diabetes will eventually require insulin therapy to maintain adequate glycaemic control. This is due to the progressive nature of the disease, and should not be viewed as failure of pre-insulin therapy. Insulin is traditionally initiated in type 2 diabetes if lifestyle modification and/or oral antihyperglycaemics have failed to maintain satisfactory blood glucose control as determined by HbA1c levels.

Delaying the use of combination oral therapy if monotherapy is not achieving good glycaemic control, or delaying the introduction of insulin where oral treatment is failing, is not warranted. In general, therapy should be intensified if a patient's HbA1c is more than 0.5 percentage points above target for more than three months.

Initiation of insulin in patients with poorly controlled type 2 diabetes may be more effective than either maximising existing mono/dual-oral therapy or adding another oral agent. Furthermore, adding insulin *before* the failure of oral therapy may prevent patients from experiencing a loss of glycaemic control. HbA1c reductions of 1.5 to 2.5 percentage points are achievable with insulin over 6 months. Approximately 50% of patients can achieve HbA1c =7% with insulin doses of 40-70 units per day. When considering insulin treatment, it is important to consider the physical and psychological readiness and ability of the patient to use insulin.

A simple and effective starting schedule is a single bedtime dose of intermediate or long-acting insulin (e.g. 10 units of isophane or glargine) added to existing oral therapy with metformin and/or sulfonylurea. Note that there may be an increased risk of myocardial ischaemia when rosiglitazone is used in combination with insulin. Note also that insulin detemir is not currently subsidised under the Pharmaceutical Benefits Scheme in Australia for use in type 2 diabetes.

The initial insulin dose is gradually adjusted every 3–4 days according to fasting (pre-breakfast) blood glucose (FBG) levels, until target FBG is reached (usually 4-6 mmol/L). Starting with a single daily injection of insulin to control fasting glycaemia may help patients gain confidence for the subsequent addition of further insulin injections if needed.

Insulin therapy must be individualised and allow for specific clinical circumstances. The approach outlined above i.e. the addition of basal insulin to existing metformin and/or sulfonylurea and titrating the insulin dose according to fasting blood glucose levels, is the simplest and most commonly used method of insulin initiation in type 2 diabetes. However, there is no single insulin schedule suitable for all patients. Factors such as the daily pattern of fasting/post-prandial hyperglycaemia, body weight, insulin resistance/ β -cell failure, diet, exercise, alcohol and other lifestyle factors must be taken into account when establishing an insulin schedule. Older patients or those who are not overweight may require lower doses of insulin. Special care is needed for patients with significant renal impairment.

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FOR FURTHER INFORMATION – CONTACT THE PHARMACY DEPARTMENT ON 82751763 or email: chris.alderman@rgh.sa.gov.au
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