The Newcastle upon Tyne Hospitals NHS Foundation Trust

Guideline for the management of pancreas surgery patients in Critical Care

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1 Introduction

This guideline is applicable to patients who have had surgery which may render them insulin dependent. This may be a total pancreatectomy, or related to extensive sub-total surgery or pancreatic necrosectomy

The current management of these patients is ad hoc, in part due to the dynamic nature of the individual situation (fluid shifts, mixed enteral and parenteral feeding, etc.).

The following approaches are recommended to achieve earlier, more controlled management of blood glucose.

2 Total Pancreatectomy

These patients will now be entirely dependent on exogenous insulin administration for their survival, and should be treated like a patient with Type 1 Diabetes Mellitus, with the risk of potentially life-threatening Diabetic Ketoacidosis occurring if they do not receive regular doses of insulin on a daily basis.

3 Peri-operative phase

On arrival to ICU, these patients should have the following prescribed straight away:

- Isophane insulin – Humulin I – 10 units twice daily at 8am and 6pm given subcutaneously
- Patients arriving in ICCU after 8pm should receive 10u Humulin on arrival
- Intravenous Actrapid infusion to start immediately

This is similar to current trust guidelines on continuation of basal insulins when a patient is on a GKI. Aim for a blood glucose target of 4 – 10 mmol/L and adjust the IV Actrapid infusion accordingly to achieve this.

Urine/blood ketones should be checked if blood glucose >13mmol/l.

The subcutaneous insulin will ensure safe transition from critical care during step-down to the surgical wards : subcutaneous insulin will cover this period when intravenous Actrapid is stopped in preparation for transfer.

Note that while the initial dose of 10 units twice daily may not be sufficient to immediately achieve target blood glucose levels once the Actrapid infusion has stopped, it will prevent the emergence of ketones and ketoacidosis.

4 Post-operative phase

Inform the FRH Diabetes Specialist Nurse as early as possible of the patient to facilitate early review on ICU.

Patients with pre-existing diabetes requiring insulin should continue their previous regime with additional intravenous Actrapid infusion as above. During the initial phase of limited oral intake, their basal s/c insulins should be continued and then meal-time insulins should be re-instated once adequate oral intake is possible.

Once the patient is being prepared for transfer to a surgical ward, please ensure that subcutaneous insulin has been given at least 1 hour before stopping the Actrapid infusion.

The twice daily subcutaneous Humulin I should stay on the patient's electronic prescription chart and this should be handed over to the surgical ward nursing staff and medical team to continue to ensure it is given as prescribed.

5 Partial Pancreatectomy or Pancreatic Necrosectomy

The above surgical procedures will reduce the patient's endogenous insulin reserves which in combination with enhanced physiological stress can potentially lead to hyperglycaemia.

6 Peri-operative phase

For the first 48 hours - Capillary blood glucose levels are to be checked 2 – 4 hourly and an intravenous Actrapid infusion should be started (if necessary) to ensure target range 4 – 10 mmol/L.

7 Post-operative phase

If no significant rise in blood glucose levels in peri-operative phase, capillary blood glucose levels are to be checked 2 – 4 times a day. Treatment options include intravenous Actrapid or subcutaneous insulin.

If hyperglycaemia occurs, inform the FRH Diabetes Specialist Nurse as early as possible of the patient to facilitate early review on ICU.

While the risk of Diabetic Ketoacidosis is lower than total pancreatectomy patients due to remaining pancreatic function, a safe transition of the patient's diabetes care should still occur. **This should be planned in advance of step-down in collaboration with the inpatient Diabetes team.**

8 Additional notes

Potassium supplementation should be administered according to current critical care guidelines

If the diabetic nurse specialist is unavailable, or blood glucose is difficult to control, the diabetic registrar on call should be contacted via switchboard.