

REFEEDING SYNDROME

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When patients start to feed following a period of starvation a sudden shift from fat to carbohydrate metabolism occurs and secretion of insulin increases. This leads to cellular uptake of potassium, phosphate and magnesium with fluid shifts and hence harmful consequences for the patient.

The key features in the management of the patient when refeeding are

Electrolytes - potassium, phosphate, magnesium (measure and replace if needed)

Ensuring adequate vitamin supplementation

Provision of calories at a rate determined by refeeding 'risk'

Check U+E, LFT, glucose, Ca, Mg, PO₄ prior to commencing nutritional support. Give patient potassium, phosphate and magnesium if required using **table 1** as a guide.



Ensure adequate vitamin supplementation with thiamine and a multivitamin preparation. See **table 2**.



ENTERAL

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Determine degree of refeeding risk from **table 3**.

- If **Moderate or High risk** and >50kg start feeding as per 'Out of Hours Enteral Feeding Guidelines'.
- If **Severely High risk** or <50kg commence feeding using 200mls Fresubin Original at 10mls/hr for 20 hours.*

* Refer to 'Out of Hours Enteral Feeding Guidelines' to obtain more information on procedure.

Determine degree of refeeding risk from **table 3**.

Moderate risk – start feeding at 20 kcal/kg
High risk – start feeding at 10 kcal/kg
Severely high risk – start feeding at 5 kcal/kg

(For out of hours use then the bag available is half a bag of Kabiven 5 Peripheral. In the majority of cases out of hours parenteral nutrition is not required and should be avoided)



Check U+E, glucose, Ca, Mg, PO₄ on a daily basis until concentrations within normal range. Thereafter check U+E, LFT, glucose, Ca, Mg, PO₄ at least two times each week.

Table 1 – Electrolyte replacement

(NB This is only a general guide. The actual amounts required will depend on clinical scenario)

Potassium (normal plasma ref range = 3.5 – 5.3 mmol/L)

Oral – Sando K (12 mmol potassium / tablet) up to qds

Enteral – avoid – use intravenous route

Intravenous – up to 40 mmol of potassium / 1 litre bag of sodium or dextrose (usually required if plasma potassium < 2.5 mmol/L)

NB Also consider renal function / fluid balance. Recheck potassium following infusion

Phosphate (normal plasma ref range = 0.8 – 1.5 mmol/L)

Oral – Phosphate-Sandoz (16.1 mmol phosphate / tablet) 4-6 tablets / day

Enteral – avoid – use intravenous route

Intravenous – if PO₄ < 0.3 mmol/L give Phosphates Polyfusor = 50 mmol phosphate infused over 24hrs via a dedicated peripheral cannula. More rapid administration may be used via a central line (20 mmol of phosphate in 100ml over 3 hrs)

NB May cause hypocalcaemia so check calcium levels as well as phosphate

Magnesium (normal plasma ref range = 0.7 – 1.0 mmol/L)

Oral – Magnesium glycerophosphate (4 mmol / tablet) up to 24 mmol/day

(NB may cause a tendency towards diarrhoea)

Enteral – avoid – use intravenous route

Intravenous – if Mg < 0.4 mmol/L give 40 mmol Magnesium Sulphate in 250 ml of 5% dextrose or normal saline iv over 12 hrs

NB may cause hypotension if given too quickly. Recheck magnesium following infusion

Table 2 – Vitamin and Trace Element supplementation

Supplement vitamins and trace elements according to degree of risk of refeeding and routes available for administration. As a guide use one of the following ‘regimes’ -

Oral route available

Forceval - 1 capsule od and
Thiamine - 100 mg od

Daily until full nutritional requirements being met by feeding

Enteral route available (ng / PEG /jej)

Ketovite – 5ml of liquid od and
Thiamine – 100 mg od (tablets disperse in 10ml of water, leave for 10 mins)

Daily until full nutritional requirements being met by feeding

Intravenous route available (use if high risk of refeeding syndrome)

Additrac – 10ml in 100ml 0.9% saline infused over 4 hrs and
Pabrinex – 5ml of ampoule 1 plus 5ml of ampoule 2 added to 100ml 0.9% saline or 5% dextrose infused over 30 mins (**NB can cause anaphylaxis**)
Prior to first administration of enteral or parenteral nutrition support

Table 3 – Degree of refeeding risk

Moderate Risk

Patient has one or more of the following:

BMI less than 18.5kg/m²
Unintentional weight loss greater than 10% within the previous 3-6 months
Very little intake for greater than 5 days

High Risk

Patient has one or more of the following:

BMI less than 16kg/m²
Unintentional weight loss greater than 15% within the previous 3-6 months
Very little nutritional intake for greater than 10 days
Low levels of potassium, phosphate or magnesium prior to feeding

Or patient has two or more of the following:

BMI less than 18.5kg/m²
Unintentional weight loss greater than 10% within the previous 3-6 months
Those with very little intake for greater than 5 days
A history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics

Severely High Risk

Patient has both of the following

BMI less than 14
Negligible intake for greater than 15 days

For further information about the refeeding syndrome see -
<http://www.clinbiochem.info/tpnresourcesrefeeding.html>