DRAFT Guideline for Adult Eating Disorders
This guideline is to be used in conjunction with
WSLHD Department of Nutrition and Dietetics. Procedure for Nutritional Management of Adult Eating Disorder Inpatients 2010.

Refeeding Syndrome: severe fluid and electrolyte shift that can occur when a starved or severely malnourished patient undergoes nutrition repletion during oral, enteral or parenteral feeding [1, 2]. Severe fluid and electrolyte shifts can lead to hyphophosphatemia, hypomagnesemia, hypokalemia, micronutrient deficiencies, hyperglycemia, sodium retention, fluid imbalance and organ dysfunction e.g. respiratory failure, cardiac failure.

NICE Criteria for determining people at high risk of developing re-feeding problem [3].

Patient has one or more of the following:

- BMI less than 16 kg/m2
- unintentional weight loss > 15% within the last 3–6 months
- little or no nutritional intake for > 10 days
- low levels of potassium, phosphate or magnesium prior to feeding.

Or patient has two or more of the following:

- BMI less than 18.5 kg/m2
- unintentional weight loss > 10% within the last 3–6 months
- little or no nutritional intake for > 5 days
- a history of alcohol abuse or drugs including insulin, chemotherapy, antacids or diuretics.

Guidelines

- Psychiatry should review all patients for admission and be willing to accept care once the patient is medically stable **before** the patient is accepted for care under Endocrinology for refeeding.
- Co-existing medical problems require admission under the appropriate team with Endocrinology supervising refeeding of the patient e.g. Cardiology (if telemetry required) or Haematology (for neutropenia).
- Patients that are admitted with an eating disorder for refeeding under Endocrinology should have nutrition reintroduced by nasogastric feeding. Nasogastric tube (NGT) can be inserted by nursing staff in ED and position of NGT tip (by CXR) must be checked by medical officer prior to starting feeds.
- Thiamine should be given 100mg IV prior to commencing oral feeding and continued at 200-300mg/day orally for first 7 days; 100mg daily thereafter during hospital stay.
- All patient's admitted with an eating disorder need an early referral to the Dietitian. NG Feeding target rate is estimated by dietetics and is based on body weight.
- Commence phosphate (Sandoz phosphate 500mg bd), a multivitamin and thiamine supplements prior to starting NG feeds to aid in preventing refeeding syndrome. Supplement K or Mg if levels are low prior to starting NG feeds. Phosphate, potassium and magnesium can be given IV or orally.
- Monitor electrolytes (especially K, Mg, PO_4) closely (e.g. every 6 hours for first 24hrs, then every 12 hours for next 48hrs). Adjust K, Mg, PO4 supplements daily, administered orally, enterally or intravenously.
- Aim for goal rate of NG feeding by Day 3-4 if electrolytes are stable.
- Replacing circulatory volume with IV Fluids should be done cautiously as patients are at risk of fluid overload. Glucose containing IV Fluids should be used with caution in starved individuals as it may precipitate refeeding syndrome [4].
- Additional micronutrient supplementation can include pyridoxine (B6), cobalamine (B12), folate, selenium, zinc and iron or a single mutlivitamin combination is adequate.

NG Feeds

- Patients with BMI less than 14kg/m^2 or minimal or no nutritional intake for greater than 15 days are considered **extreme risk of refeeding syndrome**. Avoid IV dextrose feeding prior to commencement of Jevity. Use Saline for rehydration

- Patients at extreme risk of refeeding syndrome should be commenced on a slow rate of 1kcal/mL feed, e.g. Jevity at 20-30mL/hr (aiming for 10-20 kCal/kg/day providing 480-720kcal/day).
- Increase NG feeds by 10-20mL/hr each time new blood tests confirm electrolytes are stable (especially K, Mg, PO_4), until goal rate 100mL/hr Jevity (providing ~2400kcal/day).
- If there is evidence of refeeding syndrome nutritional intakes should be reduced or ceased until symptoms are recovered or resolved.
- Patient at extreme risk of refeeding syndrome will benefit from being nil by mouth (exception of medications) for first 12 hours of feeds to help control the initial delivery of nutrients (especially carbohydrate) and prevent postprandial hypoglycemia. The Dietitian will provide a meal plan when appropriate.
- Dietitian will advise if NG feeds should be changed to 1.5kcal/mL formula if requiring fluid restriction for management of oedema.
- Dietitian will review regarding changing to cyclic overnight feeding once tolerating goal rate of NG feed and eating well, without evidence of purging, and with evidence of weight gain that is not due to oedema.

Medical Management

- Minimum of fourth hourly vital sign measurements (including overnight)
- Initial blood tests: UEC, CMP, albumin, LFT, FBC, glucose. Patients will require daily electrolytes (especially Mg, K, PO4) in the first few days or until electrolytes are stable. This may take up to 1 week if patients require NG feeding.
- Other initial blood tests may include CRP, Iron studies, sex hormones (FSH, LH, oestradiol), Vitamin D, Vitamin B12, folate, INR, Zinc.
- Daily 12 lead ECG on admission and daily ECG indicated if there are electrolyte derangements.
- If bradycardic, QTc prolonged on ECG or significant risk of refeeding syndrome, the patient should be monitored on Telemetry.
- Assess for acute complications of starvation
  - Bradycardia
  - Hypotension
  - Hypoglycemia
  - Oedema- peripheral and central
  - Prolonged QTc
  - Neutropenia
- Assess for chronic complications of starvation
  - Hypogonadism (amenorrhoea)
  - Osteoporosis
  - Impaired wound healing
- Check daily or 2nd daily weight
- Patients are encouraged to eat meals and snacks prescribed by Dietitian in addition to NG feeds after the first day of admission. Oral intake should be documented on a food chart.
- Observe for attempts to tamper with NG feeds (e.g. switching off pump)
- Restrict toilet access for one hour post meals to prevent vomiting

When the patient is medically stable and no longer requiring telemetry contact Psychiatry to arrange transfer for inpatient psychiatric management in C4a with medical team consultation if needed.

See also

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References

1. Solmon SM, Kirby DF. The refeeding syndrome: a review. Journal of Parenteral and Enteral Nutrition, 1990; 14: 90-7

2. Flesher ME, Archer KA, Leslie BD, McCollom RA and Martinka GP. Assessing the Metabolic and Clinical Consequences of Early Enteral Feeding in the Malnourished Patient Journal of Parenteral and Enteral Nutrition. 2005; 29 (2):108-117.
3. National Institute for Health and Clinical Excellence: Nutrition support in adults. Clinical guideline CG32 2006.
4. Rio, A., Whelan, K., Goff, L., Reidlinger, P., and Smeeton, N. Occurrence of refeeding syndrome in adults started on artificial nutrition support: prospective cohort study. British medical Journal Open, 2013; 3: e002173. Doi:10.1136/bmjopen-2012-002173.
5. Byrnes M, Strangenes J. Current Opinion in Clinical Nutrition and Metabolic Care. 2011, 14:186-192. Refeeding in the ICU: an adult and pediatric problem