Refeeding Syndrome

Refeeding syndrome broadly refers to a severe electrolyte disturbance (namely low serum concentrations of the predominately intracellular ions; phosphate, magnesium and potassium) and metabolic abnormalities in undernourished patients undergoing refeeding by any route [1].

There is no clear definition of refeeding syndrome, and no consistent pattern of biochemical or clinical abnormalities, however it may result in congestive cardiac failure and cardiac arrhythmias which may prove fatal. Other recognised complications include liver dysfunction, respiratory failure and central nervous system abnormalities.

The following clinical criteria for determination of its risk have been proposed [2].

One of the following features is required;
BMI < 16 kg/m2
Unintentional body weight loss >15% in the preceding 3 to 6 months
Minimal or no significant nutritional intake for >10 days
Low levels of plasma potassium, phosphate or magnesium before feeding

Or two of the following features are required;
BMI < 18.5kg/m2
Unintentional body weight loss >10% in the preceding 3 to 6 months
Minimal or no significant nutritional intake for > 5 days
Medical history of alcohol or drug abuse

Any patients (including those with primary addiction problems and depression), that meet the clinical criteria for determination of risk of refeeding problems, is at risk of refeeding syndrome, however, patients with eating disorders, commonly meet these criteria.

NICE recommends for patients at risk of refeeding syndrome that the patient is prescribed oral thiamin 200–300 mg daily, vitamin B co strong 1 or 2 tablets, three times a day (or full dose daily intravenous vitamin B preparation, if necessary) and a balanced multivitamin/trace element supplement once daily immediately prior to refeeding and for the first 10 days [3].

MARSIPAN (Management of Really Sick Patients with Anorexia Nervosa) was written by Royal Colleges of Psychiatrists, Physicians and Pathologists following concerns that patients with severe anorexia nervosa were being admitted to general medical units and sometimes deteriorating and dying [4]. It focuses on patients with anorexia nervosa and a BMI<15. It highlights that the first 7-10 days of feeding a seriously ill patient with anorexia nervosa poses a significant risk of developing refeeding syndrome and its related complications. Initial feeding (7-10 days) is aimed at weight and medical stabilisation and prevention of any weight loss, as opposed to weight gain, as well as building patient's tolerance to a calorie (Kcals) intake that will eventually promote weight restoration. It recommends a dietetically prescribed menu plan during the refeeding process that starts with an intake of 20 Kcals/Kg of body weight and is gradually increased dependent on the patient's progress. In some cases, however, where severity indicators are present, a lower starting intake may be required e.g. 10 Kcals/Kg body weight.

Such patients require daily FBC, U+Es, bone profile (including phosphate), Mg, LFTs, CK, glucose and daily ECGs initially for the first 7-10 days, reducing to twice weekly, then weekly thereafter. Patients should be weighed twice weekly initially. Should a patient's potassium, phosphate or magnesium levels reduce to below the normal range during the refeeding process, appropriate supplementation, in line with local guidance, should be prescribed. Patients require observations; pulse, BP, temp, O_2 sats 4 hourly or as medically indicated. Additionally they usually require nursing supervision and support during and after meals and snacks, and may require one to one nursing continuously. Blood sugar levels should be tested regularly and hypoglycaemia corrected. A fluid balance chart and stool chart are recommended.

It is important for staff looking after patients with anorexia nervosa, during the refeeding process (and thereafter) to be aware of and vigilant for covert eating disordered compensatory behaviours and consider an appropriate care plan to support the patient with all aspects of their recovery.

Further guidance and advice on the management of patients with eating disorders who may be at risk of refeeding problems, can be accessed from the Greater Glasgow and Clyde Adult Eating Disorder Service.

1. Crook M. Refeeding syndrome: Problems with definition and management. Nutrition 2014; 30; 1448-1455

2. Rio A, Whelan K, Goff L, Reidlinger DP, Smeeton N. Occurrence of refeeding syndrome in adults started on artificial nutrition support; prospective cohort study. BMJ Open 2013; 11: e002173

3. National Institute for Health and Clinical Excellence (NICE). Nutrition in adults; oral nutrition, enteral tube feeding and parenteral nutrition. 2006. (Clinical guideline 32)

4. Royal College of Psychiatrists. MARSIPAN: Management of Really Sick Patients with Anorexia nervosa. London. UK. Royal College of Psychiatrists; 2014.

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