CLINICAL PRACTICE GUIDELINE

Pregnancy Post-Bariatric Surgery - Dietary Management

This document should be read in conjunction with the Disclaimer

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Aim

The aim of this guideline is to provide an overview of the key points of medical nutrition therapy (MNT) for the dietary management of: Pregnancy post-bariatric surgery, consistent with best practice and current evidence.

Background

Pregnant and postpartum women post-bariatric surgery are at risk of nutrient deficiencies due to increased nutrient needs, surgery-induced changes to intake, absorption, and metabolism of nutrients(1).

Royal Australian and New Zealand College of Obstetricians (RANZCOG) recommends referral of all patients in pregnancy post-bariatric surgery to a dietitian for assessment and monitoring since additional nutrient supplementation may be required during pregnancy(2).

Management Goals

Dietetic management of pregnancy post-bariatric surgery aims to:

- Early Referral to Dietitian.
- Assess the patient's current nutritional status and detection and prevention of nutritional deficiencies.
- Promote a diet which is nutritionally adequate for pregnancy and lactation.
- Promote healthy gestational weight gain (GWG) based on pre-pregnancy body mass index (BMI) consistent with the Institute of Medicine (IOM)(3) and RANZCOG guidelines(2).
- Promote regular safe exercise.
- Avoid ketonuria/ ketonemia.

Medical Nutrition Therapy

Medical nutrition therapy for pregnancy post-bariatric surgery should include the following:

Nutrition Assessment

Topic	Management
Past medical history	Timing and type of surgery (note: if less than 12-18 months post-op be particularly alert of nutritional deficiencies). Complications and co-morbidities. History of deficiency and compliance with post-surgery supplementation.
Medications and supplements	Chronic use of certain medications can exacerbate: • Nutrient deficiencies with examples as follows: o Proton-pump inhibitors: Vitamin B12, Vitamin C, Calcium, Iron and Magnesium. o Anticonvulsants: Calcium and Vitamin D. o Metformin: Folate and Vitamin B12. o Colchicine (treatment of gout): Vitamin B12 o Neomycin (antibiotic): Vitamin B12 • Constipation with examples as follows: o Antacids (e.g. Rennie, Mylanta) o Doxylamine (e.g. Restavit for N&V) o Opioids o Calcium and Iron Supplements o Diuretics
Diet history	• Food and fluid intake • Aversions and intolerances • Nutrition and health awareness • Food availability • Psychosocial and economic issues impacting nutrition therapy and co-morbidities

Topic	Management
Weight history	• Height, pre-pregnancy weight, pre-pregnancy BMI, current weight. • Assess gestational weight status in context of pre-pregnancy BMI and fetal growth scans. • Determine duration of weight stability post-bariatric surgery - if experiencing active weight loss be alert of nutritional insufficiency.

Nutrient deficiency	• For **all** women at the beginning of pregnancy, or as soon as possible, screen for the nutrients listed below(4):
	  ○ Iron studies.
	  ○ Folate (RBC folic acid optional).
	  ○ B12
	  ○ Vitamin D.
	  ○ Vitamins A and E.
	  ○ Thiamine.
	  ○ Optional:
	    ▪ Copper (i.e. In persistent iron deficiency or zinc supplementation).
	    ▪ Zinc and Selenium if deficiency is suspected (i.e. gastric bypass surgery).
	    ▪ Vitamin K using INR
	• **Re-conduct** blood tests every trimester for gastric bypass patients and for all other patients as clinically indicated needed (5).

Diabetes screening	Assess likelihood of tolerating oral glucose tolerance test. Liaise with team to organise alternative screening (e.g. FBGL or HbA1c) as required: • Lap/gastric band: Most women tolerate the OGTT well. • Gastric Sleeve: OGTT normally well tolerated when more than 12-18 months since surgery although consider potential for reactive hypoglycaemia. • Roux-en-Y Bypass: Most women can NOT tolerate the OGTT. Refer Diabetes in Pregnancy for OGTT policy for patients post-bariatric surgery.
Gastrointestinal symptoms	Assess any gastrointestinal symptoms of: • GORD • Dumping syndrome • Vomiting – recurrent vomiting • Decreased appetite/early satiety • Regurgitation • Constipation/Diarrhoea • Steatorrhea (i.e. post-gastric bypass surgery) • Abdominal pain/bloating

Nutrition Diagnosis

- Based on the assessment the Dietitian makes an initial nutrition diagnosis using Nutrition Care Process Terminology (NCPT), which could include, but is not limited to:
  - Obesity (class I, II, or III).
  - Swallowing difficulty.
  - Altered gastrointestinal (GI) function.
  - Growth rate below/above expected.
  - Unintended weight loss
  - Inadequate protein intake.
  - Limited adherence to nutrition-related recommendations.
  - Food and nutrition related knowledge deficit.
  - Undesirable food choices.
  - Excessive oral intake.
  - Excessive energy intake.
  - Inadequate oral intake.
  - Inadequate energy intake.
  - Inadequate vitamin intake (specified) / predicted suboptimal vitamin intake.

Nutrition Intervention

Topic	Management
Weight management	• Discuss GWG goals based on pre-pregnancy BMI(2, 3), current gestational weight status, timing of surgery and duration of weight stability, and fetal growth scans. • Encourage up-to-date Physician or Surgeon review of fluid in gastric bands with the aim of achieving optimal nutritional intake, hydration, and normal fetal growth(6).
Diet education	• Diet and lifestyle strategies to optimise diet, minimise nutrition impact symptoms, support healthy gestational weight and fetal growth with provision of relevant written resources. • An energy restricted diet (≈1600 Cal) is recommended for women who continue to have obesity in pregnancy: See 'Better Lifestyles and Obstetric Outcomes for Mothers (BLOOM) Program'. • When GWG is inadequate and/or there are increased protein/energy requirements discuss dietary methods to improve intake +/- prescribe additional oral nutritional supplements as indicated. Check for ketones if there is any concern with carbohydrate restriction. • Ensure adequate hydration and fibre, as per NRVs(7). • As required, discuss postnatal dietary management to support nutrient sufficiency (including during lactation) and healthy weight (8, 9).
Supplements	• Standard pregnancy-approved multivitamin (ideally containing beta carotene)(4)

<table>
<tr><th>Topic</th><th>Management</th></tr>
<tr><td></td><td>For high risk pregnancies, including all obese women, a mega dose of 5.0 mg folic acid/daily is recommended three months prior to conception, and throughout the first trimester (refer Folic Acid Supplementation). For all other women supplement with 0.5 mg folic acid/daily.
Additional supplementation as required to meet deficiencies. Pls refer to appendix Appendix 1 and 2</td></tr>
<tr><td>Gastrointestinal symptom management</td><td>First-line treatment of gastrointestinal symptoms is dietary management where possible.
Where pharmacotherapy may be indicated (e.g. pancreatic enzymes to assist in digestion), discuss with team consultant.
Constipation is common – 1. Lifestyle intervention: ensure adequate hydration 6-8 glasses fluid/day), dietary fibre (25-35g/day) and physical activity. 2. May recommend bulk-forming laxative: e.g. Benefibre/wheat dextrin, Metamucil/psyllium husk, Fybogel/ispaghula husk). 3. Other aperients as appropriate (see Bowel Care guideline).
Regurgitation is usually from eating too fast or too large a quantity at any one time, otherwise the issue may need further investigation by a specialist.
Dumping Syndrome - recommended dietary management (10):
Early dumping occurs within 1 hour of eating. Management includes small frequent meals, drink liquids between meals.
Late dumping syndrome occurs 1-3 hours after eating and results in post-prandial reactive hypoglycaemia. Recommend a diet of low glycaemic index (GI) carbohydrate combined with protein and fat.
Treatment of Post-prandial Reactive Hypoglycaemia: <u>LOW GI</u> carbohydrate (e.g. wholegrain crackers) with a source of protein and fat (e.g. peanut paste or cheese).
NB: Be suspicious of abdominal symptoms (e.g. epigastric pain, distension/bloating) as intestinal obstruction during pregnancy is possible following abdominal surgery. Band slippage may cause severe vomiting. Discuss with team consultant(8).</td></tr>
<tr><td>Physical Activity</td><td>Encourage 30 minutes of planned physical activity/day as tolerated.</td></tr>
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Monitoring and Evaluation

- Dietitians plan ongoing monitoring and evaluation of women who are pregnant post-bariatric surgery based on their progress, gestational weight gain/fetal growth, comorbidities and measurement and evaluation of the outcomes from the prescribed nutrition intervention.
- Frequency of follow-up:
    - Gastric Bypass (e.g. BPD or RYGB): Initial consult and a minimum of one (1) review each trimester based on clinical need.
    - Gastric sleeve or gastric band: Initial consult. Ongoing review as needed.

Resources

The following resources could be considered for women with obesity in pregnancy or pregnancy after bariatric surgery:

- KEMH BLOOM Diet Plan and supplementary resources – menu plans, tips for exercise, common diet strategies, menu planning, budgeting, shopping lists;
- RANZCOG Weight Management in Pregnancy patient handout, 2015 (not available online);
- Queensland Clinical Guidelines Patient Information Sheet – Weight Management in Pregnancy;
- Nutrition Education Materials Online (NEMO). Weight gain during pregnancy chart for tracking GWG:
    - Pre-pregnancy BMI <25 kg/m^2
    - Pre-pregnancy BMI >25kg/m^2

References

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Related policies

RANZCOG Management of Obesity in Pregnancy, 2017

Related WNHS policies, procedures and guidelines

Anaemia and iron deficiency: Management in pregnancy and postpartum

Bowel Care

Dietitian Referral

Increased Body Mass Index - Management of a woman with

Diabetes in Pregnancy

Vitamin B12 Deficiency during Pregnancy

Vitamin D Deficiency in Pregnancy

Folic Acid Supplementation

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