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Directorate General of Khoula Hospital

APPROVED DOCUMENT

General Surgery Department

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Acronyms:

DGKH.	Directorate General Khoula Hospital
OGD	Oesophago-Gastro-Duodonoscopy
GERD	Gastro-oesophageal reflux disease
IV	Intravenous
OSA	Obstructive sleep apnea
CPAP	Continuous positive airway Pressure
Post-OP	Post-operative
IU	International Unit
NGT	Nasogastric tube

Definition:

- **Overweight and Obesity** are defined as abnormal or excessive fat accumulation that presents a risk to health. A body mass index (BMI) over 25 is considered overweight, and over 30 is obese.

Guideline for Enhanced Recovery after Bariatric Surgery (ERAS)

Chapter 1

1. Introduction:

Bariatric surgery has gained a lot of popularity in the last decade as it has been proven to reduce patients' weight significantly. It allowed many families to live a healthy and happy life. When a morbidly obese patient arrives at our clinic we follow certain rules and investigations in order to ensure the best quality of care is being provided. Patients with obesity are referred to our health care facility and it is important that we have a strict protocol in managing those patients in order to provide the best and optimal care.

2. Purpose:

The purposes of the guideline are to:

2.1 standardize the approach for bariatric patients and all the perioperative management involved.

2.2 focused on improving the outcome of obese patients post bariatric surgery.

3. Scope:

This guideline applies for all healthcare professionals dealing with bariatric surgical patients who are admitted at DGKH.

Chapter 2

4. Procedure:

4.1 All Obese patients referred and seen in Clinic should be with BMI > 35 with comorbidities or BMI> 40 without comorbidities.

4.2 On the first visit, the treating team should collect patient details, evaluate, and assess with explanation of the Bariatric procedures indicated.

4.3 The treating team should perform all following investigations prior to bariatric surgery which include:

4.3.1. Full blood tests (CBC, Coagulation, RFT, LFT, TFT, lipid profile, Glucose, HBA1C)

4.3.2. Vitamin D and Vitamin B12 if indicated e.g. patients in prolonged Dieting

4.3.3. Arrange for Abdominal Ultrasound for Gallbladder assessment if not done prior.

4.3.4. OGD if GERDs symptoms present, the patient should be booked for OGD.

4.4 On the second visit the surgeon should

4.4.1 Review of the results.

4.4.2 PAC review

4.4.3 Psychiatry evaluation

4.4.4 Book for Surgery

4.5 The management of Bariatric surgical patients **preoperatively** should include the following:

4.5.1 Pregnancy test should do for all female patients.

4.5.2 Routine laboratory investigations (CBC, RFT, LFT) if not done within a month, except coagulation to be repeated only if more than 3 months

4.5.3 All regular medication to be taken on the night of surgery (around 2 am with sips of water)

4.5.4 Fluid diet on the day prior to the surgery

4.5.5 To check US abdomen for presence of gallbladder stones

4.5.6 Anaesthesia review before admission and before the day of surgery

4.5.7 Low molecular weight heparin (Clexane) 6000 IU at 6 pm on the day prior to the surgery.

4.5.8 To be seen by Physio-therapist pre-op and to be provided by incentive spirometry.

4.5.8 For patient with OSA to apply STOP-bang Questionnaire to determine the need for CPAP post OP

4.5.9 The treating team has to discuss with anesthetist about the patient and any requirements need such as arterial line.

4.5.10 All diabetic patients to be kept on insulin sliding scale.

4.5.11 If patient has other co-morbidities should be referred to physician pre-op.

4.5.12 If the patient on Aspirin, **not to be stopped prior the surgery.**

4.5.13 Follow preoperative fasting guidelines to reduce the risk of aspiration during surgery.

4.6 During Intra-operatively:

4.6.1 Presence of Senior Anesthesiologist

4.6.2 Gastric sleeve calibration tube (Bougie) Size 40 Fr (**Not to be inserted** without Bariatric surgeon instruction)

4.6.3 **No Foley's catheter to be inserted.**

4.6.5 **No NGT to be inserted.**

4.6.5 Cefazoline 2 G Stat Dose at induction of anaesthesia

4.6.6Maintain adequate hydration during surgery to support cardiovascular function and tissue perfusion.

4.7 Intra-Operative Positioning of Obese patients

4.7.1 Supine split-leg position (French position)

4.7.2 Both hands outside

4.7.3 Pneumatic compression to be applied.

4.7.4 Pelvic Binder and legs to be strapped.

4.8 Bariatric Surgery Instrumentation and intraoperative patient preparation include the following:

4.8.1 Veress needle

4.8.2 Visiport (optical Port)

4.8.3 Camera 0 degree and 30 degree (10mm)

4.8.4 Bariatric laparoscopic set or normal laparoscopic set

4.8.5 The Endostaplers Medtronic

4.8.6 Voyant or harmonic or ligasure

4.8.7 Hemostatic Agent Fbrila

4.8.8 Suture Endopasser

4.8.9 Size 1-0 vicryl

4.8.10 Skin to be closed with 3-0 /4-0 absorbable undyed vicryl

4.9 **Post-operative Management of Bariatric Patients:**

4.9.1 IV medications: Paracetamol 1 g QID, Keterolac 30 mg TID, Omeprazole 40 mg BID

4.9.2 IV fluids DNS (if not diabetic): 100 ml per hour

4.9.3 In D0 Post OP, the following to be implemented:

a. To start taking orally clear fluids after 4 hours of surgery unless indicated otherwise.
b. Ambulation after 2 hours unless indicated otherwise
c. Injection Clexane 6000 IU should give after 12 hours
d. To start physiotherapy and incentive spirometer
e. Monitor vitals 4 hourly
f. If the patient complains of tachycardia to involve surgeon on call and consultant on call.
g. If the patient complains of Dizziness, Complete Blood Count of patient to be sent.
h. If the patient has high blood pressure, the on call to communicate with physician to review the case and to start appropriate anti-hypertensive agent.
i. HDU bed to be arranged by bed manager if requested by the anesthetist or the surgeon.
j. The patient should be review by clinical dietitian on D1 post operation.
k. Bedside nurse should Monitor the following :
    i. fluid intake and output closely, especially in patients with comorbidities such as diabetes or heart disease
    ii. electrolyte levels and maintain balance during surgery, especially in patients at risk of electrolyte imbalances.
    iii. blood glucose levels closely, especially in patients with diabetes.
l. Use insulin or other medications as needed to maintain tight glucose control during surgery.

4.9.4 Nutritional Support:

a. In some cases, especially for longer surgeries or patients at higher nutritional risk, intraoperative nutritional support may be considered.

b. This can include intravenous fluids containing glucose and electrolytes, as well as amino acids to support protein synthesis.

c. Consider the patient's postoperative nutritional needs when planning intraoperative nutrition management.

d. Ensure a smooth transition to postoperative nutrition support, including oral intake and, if necessary, tube feeding.

9.4.5 Medication Considerations:

a. Adjust medication doses as needed, especially for medications that affect glucose levels or metabolism.
b. Consider the impact of anaesthesia on nutritional status and metabolism.

10. Postoperative nutrition management for bariatric patients:

It is critical for successful recovery and long-term weight loss maintenance. The plan of the approach to postoperative nutrition management as the following:

10.1 Immediate Postoperative Phase (Days 1-3):

a. Clear liquids only, such as water, broth, and sugar-free gelatin.
b. Slowly advance to full liquids as tolerated, including protein shakes and low-fat yogurt.

10.2 Early Postoperative Phase (Weeks 1-2):

a. Transition to pureed foods, including lean proteins and cooked vegetables.
b. Focus on hydration and protein intake to promote healing and prevent muscle loss.

10.3 Intermediate Postoperative Phase (Weeks 3-4):

a. Gradually introduce soft, moist, and easily digestible foods.
b. Continue to prioritize protein intake and hydration.

10.4 Long-Term Postoperative Phase (Weeks 5 and beyond):

a. Progress to a regular textured diet, focusing on lean proteins, vegetables, fruits, and whole grains.
b. Encourage small, frequent meals to prevent overeating and promote weight loss.

11. Nutritional Supplementation:

a. Continue to take a daily multivitamin and mineral supplement to prevent deficiencies.

b. Consider additional supplements based on individual needs, such as calcium, vitamin D, and B vitamins.

c. Specific formula should be added to the patient after surgery according to his/her case e.g Diabetic patient should consume glucerna where other patients can have ensure as a supplements.

12. Fibre Intake:

a. Fibre is important for digestive health and can help prevent constipation, a common issue after surgery.
b. Encourage high-fibre foods such as fruits, vegetables, whole grains, and legumes.

13. Hydration:

a. Drink plenty of fluids throughout the day, focusing on water and avoiding high-calorie beverages.

b. Avoid drinking with meals to prevent dumping syndrome and promote satiety.

14 **Behavioural and Lifestyle Changes**:

a. Encourage regular physical activity and behavioural changes to support long-term weight loss maintenance.

b. Provide ongoing support and counselling to address emotional and psychological factors related to food and eating.

15 **Monitoring and Follow-Up**:

a. Schedule regular follow-up appointments with healthcare providers to monitor progress and adjust the nutrition plan as needed.

b. Monitor for signs of complications, such as nutrient deficiencies, dumping syndrome, and malnutrition.

16. <u>On discharge:</u>

16.1 The treat team should write discharge summary and medications which include:

a. Paracetamol PRN for 5 days
b. Tramadol PRN 50mg BID for 3 days
c. Diclofenac sodium 50 PRN for 5 days (unless contraindicated)
d. PPI (Omeprazole) 20mg OD for 3 months

16.2. Follow-**Up in Out-Patient Clinic**:

16.2.1First OPD visit 1-2 weeks after discharge, on first visit patient to be started on:

a. Multivitamins (Centrum) 1 tablet daily for 3-5 years

b. Ursodeoxycolic acid for gallbladder stone prevention 250mg BID

c. Protein ensure daily for 3 months.

16.2.2. Second OPD visit after 3 months

16.2.3 Third visit to be decided according to 2nd visit (6 month)

16.2.4 After one year to be referred to Local Health center for further follow up.

16.2.5 The patient to be referred back from the Health Centre if any newly developed complains.

Chapter 3

7. Responsibilities:

7.1 The Head of Department shall:

7.1.1 Emphasize to the consultants /doctors the importance of following the guideline

7.2 The Director of Nursing Affairs shall:

5.2.1 Emphasize to the HoS/Unit Supervisors the importance of following the guideline.

7.3 The Ward In-Charges/Shift In-charges shall:

7.3.1 Ensure all nurses are adhere to the guideline

7.3.2 Report any incident related the difficulty in application of the protocol

7.3.3 Liaise with treating team as needed.

7.4 Treating Team shall:

7.4.1 Adhere to the guideline strictly.

7.5Clinical Dietitian Shall:

7.5.1 Adhere to the guideline strictly.

7.5.2 Work closely with anaesthesiologists, surgeons, dietitians, and other healthcare providers to coordinate intraoperative nutrition management.

7.5.3 Ensure clear communication and documentation of the nutrition plan and any changes made during surgery.

8. **Document history and version control table:**

Version	Description	Authors names:	Review date
1	Initial release	1. Dr .Bader Al Hadrami 2. Dr. Sara Al Awad 3. Dr. Yasser Al Maskari	2025
2	second edition	1.Dr .Bader Al Hadrami 2.Dr. Sara Al Awad 3.Dr. Yasser Al Maskari 4. Dr Abdul Rahman Radwan 5. Dr. Eiman AL Hinai	2026

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13. American Society for Metabolic and Bariatric Surgery (ASMBS): ASMBS is an authoritative organization dedicated to bariatric surgery and the treatment of obesity.
14. Cleveland Clinic: The Cleveland Clinic is a leading academic medical centre known for its expertise in patient care and medical research.
15. Imperial colleague London of Diabetes Centre
16. Gastric Bypass and Sleeve Gastrectomy Nutrition Guidelines
17. Mayo Clinic: The Mayo Clinic is a renowned medical research and practice group that provides reliable and up-to-date information on various health topics

10. Annexes:

10.1 Appendix 1: General simple description guideline for the postoperative diet stages:

Stage	Description
Stage 1: Clear Liquids (Days 1-2):	• Drink only clear liquids such as water, broth, and sugar-free gelatine. • Sip slowly and avoid using a straw to prevent swallowing air.
Stage 2: Full Liquids (Days 3-7):	• Progress to full liquids such as protein shakes, skim milk, and strained cream soups. • Aim for at least 64 ounces of fluid per day to prevent dehydration.
Stage 3: Pureed Foods (Weeks 2-4):	• Gradually introduce pureed foods such as cottage cheese, pureed vegetables, and blended lean meats. • Ensure foods are smooth and free of lumps to prevent discomfort.
Stage 4: Soft Foods (Weeks 5-6):	• Transition to soft, moist, and easily chewable foods such as scrambled eggs, canned fruits, and tender fish. • Avoid tough or fibrous foods that may be difficult to digest.
Stage 5: Solid Foods (Week 7 onwards):	• Slowly reintroduce solid foods, starting with small portions and gradually increasing portion sizes. • Focus on lean proteins, vegetables, fruits, and whole grains.
Throughout all stages of the postoperative diet, it's important for patients to follow: • Eat small, frequent meals to prevent stretching the stomach pouch. • Chew food thoroughly and eat slowly to aid digestion. • Drink fluids between meals rather than with meals to avoid flushing food through the stomach too quickly (which can cause dumping syndrome). • Patients should also avoid high-calorie, high-fat, and high-sugar foods and beverages, as well as alcohol and carbonated drinks, which can cause discomfort and may hinder weight loss. Following the postoperative diet guidelines provided by their healthcare team is essential for successful recovery and long-term weight management.	

10.2 Appendix 2: Samples of diet on preoperative, intraoperative and postoperative (Arabic and English).

نظام الحمية قبل العملية (تصغير الكبد)

المرحلة الاولى (اسبوعين قبل العملية)

- وجبة الفطور:

بيضة مسلوقة + كوب لبن أو حليب قليل الدسم

أو

بيضة + 3 ملاعق طعام جبن قليل الدسم مبشور (أومليت) + خضار

أو

شريحتين جبن قليل الدسم + شريحتين تركي مدخن + خضار

- وجبة خفيفة

سلطة أو خيار أو زبادي خالي الدسم

- وجبة الغداء:

90 غرام سمك أو دجاج منزوع الجلد أو لحم بدون دهون (حجم راحة اليد) صحن سلطة + صحن خضروات مطبوخة

أو حبة فلفل رومي وسط / حبتين كوسا محشي وسط باللحم/ دجاج مفروم

- وجبة خفيفة

سلطة أو خيار أو زبادي خالي الدسم

- وجبة العشاء:

كوب شوربة بدون كريمة + صحن سلطة أو علبة تونة معلبة بالماء + خضار أو خيارات الفطور

الخضار الممنوعة: ذرة، بازيلا، يقطين، بطاطا

المرحلة الثانية – السوائل الكاملة (يومان قبل العملية)

- حليب - زبادي - لبن قليل الدسم
- شوربات بدون كريمة
- مشروبات زنجبيل او زعتر او بابونج بدون سكر
- جيلي
- كوب عصير تفاح
- ماء منكه غير محلى
- قهوة قليلة الكافيين
- كوب ليموناده من غير لب
- كوب مرق لحم أو دجاج
- مثلجات خالية من السكر

المرحلة الثالثة – السوائل الشفافة (يوم قبل العملية)

- كوب عصير تفاح
- ماء منكه غير محلى
- قهوة قليلة الكافيين
- كوب ليموناده من غير لب
- كوب مرق لحم أو دجاج
- مثلجات خالية من السكر

10.3Appendix 3: Pre-Operation Diet Plan for Liver Reduction Surgery

First Stage (Two Weeks before Surgery):

Breakfast:

Boiled egg + cup of low-fat yogurt or milk
Egg + 3 tbsp. of shredded low-fat cheese (or omelette) + vegetables
2 slices of low-fat cheese + 2 slices of smoked turkey + vegetables

Snack:

Salad, cucumber, or fat-free yogurt

Lunch:

90g of skinless fish, chicken, or lean meat (palm-sized portion) + salad plate + cooked vegetables
Stuffed bell pepper/ zucchini with minced meat/chicken

Snack:

Salad, cucumber, or fat-free yogurt

Dinner:

Cup of cream-free soup + salad plate or canned tuna in water + vegetables
Forbidden Vegetables: corn, peas, pumpkin, potatoes

Second Stage - Full Liquids (Two Days before Surgery)

Low-fat milk/yogurt
Cream-free soups
Sugar-free ginger, thyme, or chamomile drinks
Gelatin
Cup of apple juice
Unsweetened flavored water
Lemonade without pulp
Cup of beef or chicken broth
Sugar-free ice cream

Third Stage - Clear Liquids (One Day Before Surgery)

Cup of apple juice
Unsweetened flavoured water
Low caffeine coffee
Lemonade without pulp
Cup of beef or chicken broth
Sugar-free ice cream
Top 3 Authoritative Sources:

10.4 **Appendix 4: Bariatric Surgery Diet**