Peri-operative and Post-operative Medication for Bariatric Surgery - Full Clinical Guideline

Reference no.: CG-PHARM/2020/007

1. Introduction

This guideline will provide a practical guide for medical and other healthcare professionals involved in peri and post-operative prescribing and monitoring in bariatric patients.

2. Aim and Purpose

To improve the management of post-operative prescribing and monitoring in bariatric patients.
To provide evidence-based recommendations to promote a safe and consistent approach to prescribing medication in patients prior to and after bariatric surgery.

3. Definitions, Keywords

LMWH – low molecular weight heparin

4. Guideline

Types of bariatric surgery (1)

Adjustable gastric band	A band is placed around the top of the stomach to create a small pouch. This decreases food intake.
Roux en-Y gastric bypass	This involves creating a gastric pouch at the top of the stomach. The gastric pouch is connected to the ileum, bypassing the duodenum and the jejunum. This procedure restricts food intakes and changes how food is absorbed.
Sleeve gastrectomy	Removal of up to 75% of the stomach therefore reducing the amount of food that can be consumed.

All bariatric surgery/procedures will affect nutritional intake and/or absorption to vary degrees (2)

Table 1: Impact of surgery on nutrition and drug absorption (1) (2)

Surgical procedure	Impact on nutrition	Impact on medication absorption
Gastric band	No impact on the absorption of nutrients, however patients may still experience vomiting or regurgitation and may develop food intolerances.	Does not affect absorption of medicines
Gastric bypass	Impact on the absorption of iron, vitamin B12, calcium and vitamin D.	The dissolution and disintegration rate, as well as the absorption of drugs is affected. pH condition of the GI tract will have changed. The surface area is reduced. Drugs that are mainly absorbed in the upper intestine will have a reduced bioavailability in gastric bypass patients.
Sleeve gastrectomy	There are reports of low vitamin B12 levels and iron deficiency anaemia.	The dissolution and disintegration of tablets and capsules might be affected by the smaller size of the stomach. pH condition of the GI tract will have changed.

Patients which need to be highlighted to the MDT prior to surgery:

The patients on the following medicines need to be highlighted prior to admission or at the beginning of their admission:

- Anti-epileptics
- Lithium
- Anticoagulants
- Antipsychotics
- Chronic pain medication
- Modified Release preparations of medication as absorption can alter after bariatric surgery
- Anti-diabetics (Please see the Diabetes Mellitus – elective surgical procedures Clinical Guideline on Net-i) (3)
- Contraception and plans for pregnancy following bariatric surgery should be discussed early and form part of pre-operative counselling and education. Oral contraceptives should be replaced by non-oral contraceptives due to reduced efficacy after gastric bypass and bilio-pancreatic diversion

Some medication may need to be stopped other medication may need to be changed to alternative preparations post operatively due to the impact of absorption. Please contact the ward pharmacist for further information regarding these possible changes.

Enhanced recovery

There is an enhanced recovery protocol which all bariatric patients will commence post-surgery. See Appendix 1.

VTE prophylaxis (4)

Enoxaparin is the LMWH of choice at UHDB and the dose is adjusted based on weight.

Patients who have had bariatric surgery will require a total of 14 days of enoxaparin from the date of the operation.

Inpatients will be prescribed enoxaparin twice daily post bariatric surgery, however, on discharge this will be changed to once daily. See the tables below for dosing information.

Inpatient enoxaparin dosing for bariatric inpatients after surgery	
Weight (kg)	Enoxaparin dose
<100kg	40mg OD (6pm)
>100kg	40mg BD

*A stat dose of enoxaparin is given at 10pm post op unless instructed otherwise in the post op notes.

Thromboprophylaxis at discharge – to complete a 14 day course from date of surgery.

Enoxaparin dosing for bariatric patient at discharge	
Weight (kg)	Enoxaparin dose
<100kg	40mg OD
100kg- 150kg	60mg OD
>150kg	80mg OD

TEDS

If patients are able to wear TEDS and have correctly fitting TEDS they are discharged with these and advised to wear them for 2 weeks.

Nutritional supplements

A complete multivitamin and mineral supplement is recommended after all bariatric procedures such as forceval. (2)

A minimum of 2mg of copper needed per day which forceval contains. (2)

An iron intake of between 45-60mg from multivitamin and mineral supplement and additional iron is recommended following a gastric bypass and sleeve gastrectomy (2)

Table 2: Nutritional supplements

Nutritional supplement	**Surgical procedure**			**Medication**	**Duration**
	Sleeve gastrectomy	Gastric bypass	Gastric band		
Multivitamin and mineral	Yes	Yes	Yes	Forceval 1 OD	Lifelong
Zinc and copper	Yes	Yes	Yes		
Selenium	Yes	Yes	Yes		
Folate (as part of a multivitamin)	Yes	Yes	Yes		
Iron	Yes	Yes	No	Ferrous fumarate	Lifelong

				210mg OD	
Vitamin B12	Yes	Yes	No	Vitamin B12 injection – 3-monthly via GP. N.B. sleeve gastrectomy patients may need less frequent injections.	Lifelong
Calcium + Vitamin D	No	Yes	No	Adcal-D3 tablets 2 OD for gastric bypasses. Patients may require additional vitamin D which can be purchased over the counter.	Lifelong
Vitamin D	Yes	No	No	Colecalciferol 800units - 1000units daily for sleeve gastrectomy. *Patients will be advised to buy this themselves	Lifelong

If a patient experiences prolonged vomiting always prescribe additional thiamine (thiamine 200–300 mg daily, vitamin B co strong 1 or 2 tablets, three times a day) and urgent referral to bariatric team. Those patients who are symptomatic or where there is clinical suspicion of acute deficiency should be admitted immediately for administration of IV thiamine.

Analgesia

Paracetamol 1g QDS
Codeine 30mg to 60mg QDS PRN

Anti-emetics

Ondansetron 4mg TDS for 5 days
Cyclizine 50mg TDS for 5 days (sleeve gastrectomy only)

Laxatives
Senna 15mg ON for 5 days

Other medication

Simethicone 200mg (5ml) TDS for 3 days (to help get rid of excess wind post-op for sleeve gastrectomies and gastric bypasses only)

Omeprazole 20mg OD (12months or patient's usual PPI if already on) for sleeve and bypass. Only for 6 weeks postop for gastric band.

Ursodeoxycholic acid 500mg BD 6 months (if gallbladder in situ & not known gallstones) for sleeve and bypass only.

Additional information

Antidiabetic medication
Metformin can be reassumed from the 3rd day after surgery providing that renal function has been controlled. After gastric bypass surgery, biological availability of metformin increases by 50%, and therefore reduced dosages should be prescribed. (5)

In the first 7–10 days after surgery, use of sulfonylureas and medications that increase the risk of hypoglycaemia should be avoided.

Doses of anti-diabetic medicines may decrease as weight loss occurs therefore it is important that the GP is aware to review the patient on a regular basis.

Anti-hypertensives
In the first week after surgery, blood pressure tends to go down and should be monitored actively, with prompt adjustment of blood pressure medications to the new therapeutic needs. Continued surveillance of blood pressure is needed after surgery, because of the high risk of recurrence over time. Treatment of hypertension in the long-term should adhere to current NICE guidelines, possibly avoiding anti-hypertensive medications with a known unfavourable effect on body weight. There should be clear documentation on discharge for GPs to review anti-hypertensive medication post discharge. (5)

Review the need for and preferably avoid diuretics as they can precipitate potential complications in patients who are liable to dehydration or have prolonged nausea or vomiting (especially in sleeve patients who experience a lot of nausea in the first week after surgery). If the patient has heart failure and was taking diuretics prior to admission please refer to cardiology for further advice.

Lipid lowering therapy

Lipid-lowering medications should not be stopped after surgery unless clearly indicated. Patients with dyslipidaemia and on lipid modifying medications should have lipid profiles and cardiovascular risk status reassessed periodically. (5)

Other medication advice

Effervescent preparations should not be used after surgery because they release carbonic acid and bubbles into the stomach causing problems for patients after surgery.

Review the need for and preferably avoid NSAIDS, aspirin, bisphosphonates and clopidogrel as the risk of GI bleeds, ulcers and perforation is increased (especially in gastric bypass

patients). If a patient was taking aspirin or clopidogrel prior to admission refer to cardiology to review if these medicines can be stopped or need to be continued.

5. References

1. **Mudaly, Melitta; Smith, Katie.** *Baritaric surgery patients and their medicines.* April 2014.

2. **O'Kane, Mary ; Pinkney, Jonathan ; Aasheim, Erlend T; Barth, Julian H; Batterham, Rachel L; Welbourn, Richard.** *BOMSS Guidelines on peri-operative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery.* September 2014.

3. **Hearing, Stephen .** *Diabetic patients- baritaric surgery clinical guideline.* 2015.

4. *What doses of thromboprophylaxis are appropriate for adult patients at extremes of body weight?* **Patel, Jig, Clarke, Barbara and Gordon, Sharron.** s.l. : HAT Committee of the UK Clinical Pharmacy Association for NHS healthcare professionals, 2015 2015.

5. **Busetto, Luca, et al., et al.** *Practical Recommedations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Managment.* 2017.

6. Documentation Controls

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Approved By:	Drugs and Therapeutic Committee March 2019 Surgical Division 17/11/2020
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Key Contact:	Bariatric Surgeons

7. Appendices

Appendix 1

Derby Teaching Hospitals NHS
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THE EAST-MIDLANDS BARIATRIC & METABOLIC INSTITUTE (EMBMI)

ENHANCED RECOVERY PATHWAY – BARIATRIC SURGERY

DAY 1 POSTOP DATE: / /	TIME	NAME	SIGN IF COMPLETE	SIGN IF VARIANCE
STANDARD INPATIENT MEDICATIONS - ALL ORAL MEDS TO START THIS MORNING: • Re-start patient's usual pre-op meds • **NO METFORMIN UNTIL 48H POST-OP** • **LIAISE WITH CONSULTANT RE. DIURETICS/ASPIRIN/NSAIDS**				
Obtained bloods FBC, UE, LFT **at 6am**				
4 hourly NEWS/BM if diabetic				
IVI 0.9% Saline & 20mmols KCL or Hartmanns **75ml/hr**. Stop at lunch time if tolerating oral fluid				
If no vomiting, start oral clear fluids **at 7am**. After surgeon review build up as tolerated to smooth soup and shakes				
Encourage use of inspirometer **every 10 min**				
Sit out of bed. Anti-embolism stockings				
1st walk (ask patient to note time mobilised)				
2nd walk (ask patient to note time mobilised)				
3rd walk (ask patient to note time mobilised)				
4th walk (ask patient to note time mobilised)				
Weekday - Call Bariatric Dietitian, CNS, Physio for review. At weekend SpR & ward staff to give appropriate advice and information sheets				
Diabetic patient – follow hospital bariatric diabetes guidelines. If **TYPE 1** MUST have diabetic nurse/team review				
Teach Enoxaparin injections				
Commence discharge planning				
DISCHARGE ONLY AFTER SpR/CONSULTANT REVIEW. Book OPC (**code DTSBA**) in 6 weeks. **Discharge Criteria to be met (needs meet all of these):** ▪ **Tolerating oral fluids/liquid diet (predicted intake >750ml/d)** ▪ **Mobilising comfortably** ▪ **Postop pain controlled on oral (non-opiate) analgesia** ▪ **Observations stable** ▪ **Blood results within acceptable range** ▪ **Can self-administer enoxaparin injections** ▪ **(If has diabetes) blood sugars well controlled** ▪ **Adult supervision available at home over next 24 hours**				
IMPORTANT ALERTS: • **HR <60 or 110/min CALL TEAM/ONCALL SpR Surgery** • **RR >20 CALL TEAM/ONCALL SpR Surgery** • **IF TEMP >38.5 or <36 CALL TEAM/ONCALL SpR Surgery** • **IF SYSTOLIC BP >150 OR <90 CALL TEAM/ONCALL SpR Surgery** • **IF ANY OF ABOVE OCCUR, SEND URGENT FBC TO LAB** • **IF NO URINE OUTPUT FOR 8 HOURS – pass in/out catheter** • **IF PERSISTENT VOMITING OR ONGOING REQUIREMENT FOR OPIATES CALL TEAM/ONCALL SpR Surgery**				

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THE EAST-MIDLANDS BARIATRIC & METABOLIC INSTITUTE (EMBMI)

ENHANCED RECOVERY PATHWAY – BARIATRIC SURGERY

DAY 2 POSTOP DATE: / /	TIME	NAME	SIGN IF COMPLETE	SIGN IF VARIANCE
6 hourly NEWS/BM if diabetic				
Restart oral hypoglycaemics (hospital bariatric diabetes guidelines)				
Encourage inspirometer **every 10 min**				
Sit out of bed				
Anti-embolism stockings				
Patient to self-administer enoxaparin				
1st walk (ask patient to note time mobilised)				
2nd walk (ask patient to note time mobilised)				
3rd walk (ask patient to note time mobilised)				
4th walk (ask patient to note time mobilised)				
5th walk (ask patient to note time mobilised)				
6th walk (ask patient to note time mobilised)				
7th walk (ask patient to note time mobilised)				
8th walk (ask patient to note time mobilised)				
Patient may shower				
DISCHARGE ONLY AFTER SpR/CONSULTANT REVIEW. Book OPC (**code DTSBA**) in 6 weeks. **Discharge Criteria to be met (needs meet all of these):** ▪ **Tolerating oral fluids/liquid diet (predicted intake >750ml/d)** ▪ **Mobilising comfortably** ▪ **Postop pain controlled on oral (non-opiate) analgesia** ▪ **Observations stable** ▪ **Blood results within acceptable range** ▪ **Can self-administer enoxaparin injections** ▪ **(If has diabetes) blood sugars well controlled** ▪ **Adult supervision available at home over next 24 hours**				
DISCHARGE MEDICATION – request via iCM bariatric medication order set. Do not forget: • Review patient's usual medication (antihypertensives, anticoagulants and diabetes medication) and enoxaparin dose on discharge • **NO DIURETICS/ASPIRIN/NSAIDS ON TTO**				
Document variance if unable to complete any step of pathway	**DATE**	**NAME**	**TIME**	**SIGN**

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ENHANCED RECOVERY PATHWAY – BARIATRIC SURGERY

Patient (name) ..... **attended for Enoxaparin teaching on**.....(ward/clinic)

- ☐ Shown how to self-administer Enoxaparin by subcutaneous injection
- ☐ Advised to rotate sites
- ☐ Advised not to rub the area of injection site
- ☐ Aware of safe storage of syringes
- ☐ Aware of safe disposal of sharps
- ☐ Given sharps box and information leaflet with contact details if any concerns

Name of trainer..... Desig: .....
Sig: ..... Date: .....