Summary Sheet

Peri-operative Medicines

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Medication in the perioperative period

Careful consideration is needed to ensure that medication is optimal in the peri-operative period. This may include starting new medicines or more commonly planning when and how patients will take their own medication. Epidemiological studies concerning the perioperative management of chronic medications are clinically heterogeneous and there are few RCTs available. Most of the decisions about medications are amenable to the use of guidelines or protocols to ensure a uniform approach and make it easier for all team members to adopt a consistent approach. Guidelines should be formed after gaining consensus from the team using the evidence base that is available.

During the review of a patient's medication, the below should be considered (please note that local guidelines should always be followed regarding changes to specific medications mentioned).

- **What are the patient's normal medications?**

It is vitally important to establish what the patient's normal medications are and what they have been taking in the lead up to their surgical admission. This includes prescribed and purchased medications.

- **What should be stopped and when should it be restarted?**

One example of a drug group that can be stopped for the perioperative period are ACE inhibitors when taken for hypertension [1]. Although there is limited evidence most surgical units will withhold ACE inhibitors for1-2 days preoperatively and only reintroduce when cardiovascularly stable in the post-operative period. The aim of this is to reduce incidence and severity of hypotension perioperatively. When the patient takes the ACE inhibitor for Heart Failure the wisdom of withholding evokes more controversy, in our institution we don't differentiate between the two groups.

- **What should continue?**

Both Statins and beta Blockers are examples of medications that have been recommended by the ACC/AHA to continue throughout the perioperative period if the patient is already established on them [2]. Planning should include how they will receive their medication even if nil by mouth. Use of a long acting statin pre operatively has been advocated and i.v. beta Blockers can be used as replacement until the patient can take orally. It is essential that patients with Parkinsons Disease continue their medication perioperatively and obtaining specialised advice may be required.

- **Can anything be optimised**

One of the most common scenarios in regards to optimisation is in the diabetic patient. Planning needs to start early with the aim of better control of blood glucose throughout the perioperative period [3].

- **Is any anti-coagulation bridging therapy required?**

An example of when this is required is when a patient taking warfarin as they are thought to be at high risk of thrombotic complications but is having surgery with a high risk of bleeding. Here planning of when to stop warfarin, timing of thromboprophylaxis (e.g. Fragmin injections) and post-operative plan for re-warfarinisation all need to be considered.

- **What should be started?**

As part of our pre assessment and medication review we will consider if additional drugs are needed. This will include nutritional supplements, consideration of need to plan alcohol withdrawal, medication to assist with smoking cessation. If a particular problem is highlighted we will also consider starting new cardiovascular medication e.g. we consider starting Aspirin and a Statin in the major vascular surgery patient if they do not already take them.

- **Are there any additional specialist medications required?**

This section includes medications that are not stocked as standard on the ward or may require further input from the pharmacy team. One example is vaccinations post splenectomy.

- **Are there any specialist bloods that need to be taken?**

This should be considered during the medications review. Common examples include Gentamycin levels (and creatinine) for patients receiving gentamycin and INR levels for patients on warfarin. However, it is also important to consider standard blood sets when reviewing medications and dosage adjustments, for example review of U&Es in patients taking nephrotoxic medications. Also consider the need for Nutritional support order sets for those patients at risk of malnutrition or receiving enteral /parenteral supplements.

- **Consideration of fluids and electrolyte replacements within the review**

Fluid therapy is reviewed during the drug round. We have produced further summary sheets in fluid therapy. Careful consideration of the rate and choice of fluid is required.

- **Analgesia**

Locally we have an acute pain service that will review post-operative analgesia. This is also reviewed on the morning ward round and oral analgesia is prescribed if appropriate. Tramadol and paracetamol are our first line choices

What we've learnt

Our experience has been that sometimes it is the most basic things that can make a difference when it comes ensure patients receive optimal medicine management in the perioperative period. This includes:

- Good communications between the medical, surgical and ward teams are required with clear written instructions.
- Checking whether medications have been omitted and why (not just that they are prescribed or not).
- Ensuring antibiotics are reviewed and stopped appropriately.
- If a drug is not tolerated that an alternative is considered.
- Ensuring appropriate bloods are sent for required levels.
- If a patient is nil by mouth or has an NG in-situ can they still safely receive oral medication or is there an alternative route that can be used.
- Providing good junior doctor and nurse education and guidelines to follow.
- Make sure that patients are only discharged on required medications and appropriate referrals to specialist teams are made if there are changes.
- Medication which has been stopped should be clearly communicated to the patients GP via the EDN.

York Hospital has the below hospital guidelines:
-Perioperative medication guidelines for adult surgical patients
-Perioperative Management of Adults with Diabetes
-Stopping Warfarin for elective cases
-Management of patients taking anti-platelet medications undergoing surgical and endoscopic procedures

Please contact periop@york.nhs.uk if you would like further information on these.

References:

(1) Roshanov PS et al. Withholding versus continuing angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers before noncardiac surgery: An analysis of the Vascular Events in Noncardiac Surgery Patients Cohort Evaluation prospective cohort. *Anesthesiology* 2017; **126**:16.

(2) Fleisher L et al. AHA Guideline on Perioperative Cardiovascular Evaluation and Management of Patients Undergoing Noncardiac Surgery
A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Journal of the American College of Cardiology* 2016; **64**(22): 77-137

(3) Levy N, Penfold N. and Mythen M. Perioperative management of diabetes and the emerging role of anaesthetists as perioperative physicians. *British Journal of Anaesthesia* 2016; **116**(4): 443-447.