

Let's not take our own sweet time managing perioperative blood glucose levels (BGLs)

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Background

A pre-anaesthetic assessment should be made on all patients undergoing elective surgery. This can be performed by a multidisciplinary team in a Preadmission Clinic (PAC) (see figure 1.).

Aim

Poorly controlled blood glucose levels (BGLs) in the perioperative period can contribute to poor outcomes including post-operative infection.(1) Current perioperative medication management guidelines (2) have limited advice about optimizing patients BGLs prior to and during surgery, with the choice of therapy largely at the discretion of the anaesthetist (see figure 2.). The aim of this audit was to investigate local practice and identify areas for improvement in the perioperative management of BGLs.

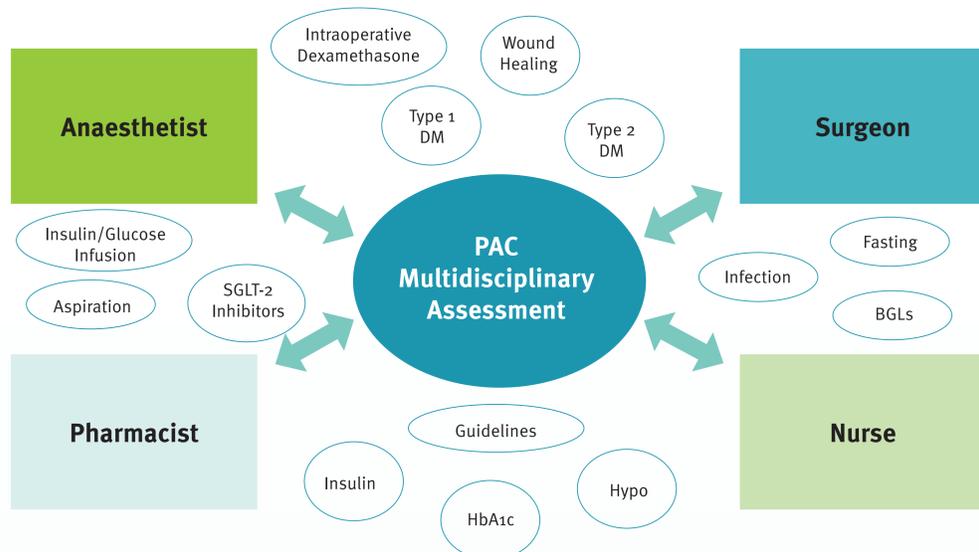


Figure 1: At the Princess Alexandra Hospital (PAH), all patients attending the PAC undergo a multidisciplinary assessment. This may include review by a pharmacist, anaesthetist, surgeon and nurse to assess suitability and prepare for their elective surgery.

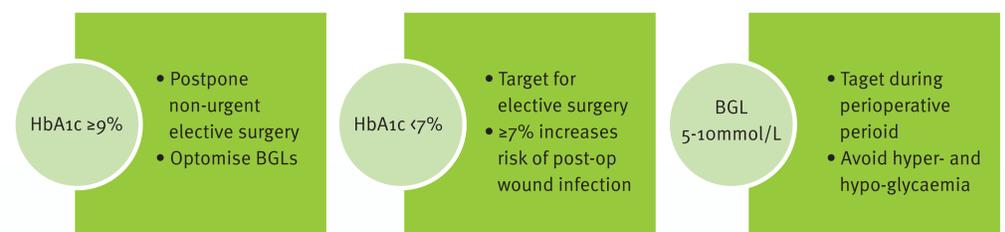


Figure 2: Targets and recommendations for the perioperative management of diabetes adapted from The Australian Diabetes Society's Perioperative Diabetes Management Guidelines(2)

Methods

A multi-disciplinary team consisting of a medical student, an anaesthetic registrar, an anaesthetic consultant and a pharmacist retrospectively screened 184 patients for inclusion. Patients were screened if they had either Type-1 or Type-2 diabetes and attended the PAC during February and March 2018. Only patients using insulin were shortlisted and to allow for ease of follow-up only patients undergoing major surgery, requiring admission, were included in the audit.(2)

Data collected included:

- usual diabetes medications
- recommendations from the multidisciplinary team for the perioperative management of diabetes including medication changes
- glycosylated haemoglobin (HbA1c)
- perioperative BGLs
- use of insulin intraoperatively
- type and time of surgery

Results

A total of 184 patients were screened and 50 were identified as using insulin prior to major surgery. HbA1c was documented prior to surgery in 26% of patients, with 46% having a HbA1c >8.9%, however only one patient had their surgery postponed (see figure 3.). Only 50% of Type-1 or Type-2 diabetic patients requiring insulin pre-operatively had their BGLs checked intraoperatively and 18% had them monitored according to hospital guidelines. BGLs were similar in patients that both did and did not receive intraoperative insulin. A BGL within target range (5-10mmol/L) occurred in 49.3% of patients receiving intraoperative insulin and 41.3% without intraoperative insulin.

Conclusion

The results of this audit demonstrate sub-optimal perioperative management of BGLs in insulin requiring diabetics. With the assistance of a focus group, contributing factors were identified. These included poor compliance with guidelines, urgency of surgery, ease and availability of laboratory results and difficulty prescribing in a newly introduced digital system. The PAC pharmacist can have a role in implementing quality improvement projects such as:

- point of care HbA1C testing in PAC
- developing hospital specific guidelines, with referral advice
- education of surgeons and anaesthetists about guidelines and how to prescribe in a digital system
- optimisation of digital medication management systems and incorporation decision support

References

1. Buchleitner AM, Martinez-Alonso M, Hernandez M, Sola I, Mauricio D. Perioperative glycaemic control for diabetic patients undergoing surgery. The Cochrane database of systematic reviews. 2012(9):Cdo07315.
2. Peri-operative Diabetes Management Guidelines. Internet: Australian Diabetes Society; 2012. Available from: <http://diabetessociety.com.au/documents/PerioperativeDiabetesManagementGuidelinesFINALCleanJuly2012.pdf>.

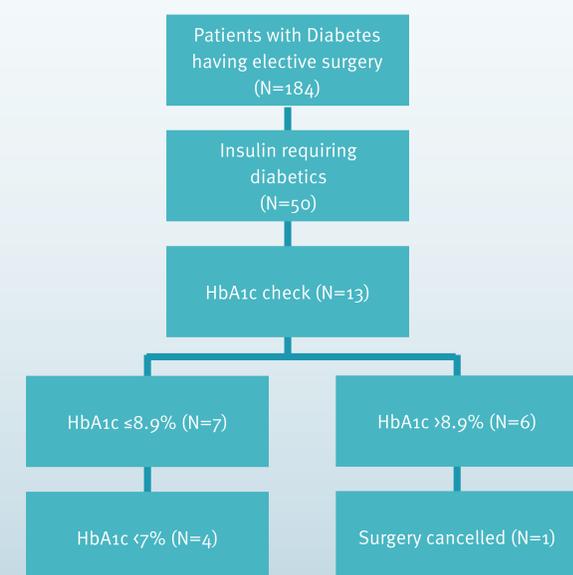


Figure 3: Summary of the screening, patients included and outcomes.