

Pre-Operative Diabetic Control in Elective Cardiac Surgery

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BACKGROUND

Cardiovascular disease is the leading cause of death among diabetic patients. The incidence of diabetes in patients undergoing coronary artery bypass surgery has been reported as between 18% and 38%, representing an important subgroup. Diabetes has been shown to be an independent risk factor for stroke, wound infection, renal dysfunction and operative mortality in patients undergoing cardiac surgery. However, tight glycaemic control has been shown to reduce the increased risk inferred by the disease. In view of this, the current diabetic guidelines state that all patients with poor pre-operative control (stated as an HbA1c >8%) should be referred for specialist input. The aim of this audit was to assess whether all patients undergoing cardiac surgery in our institute were being managed according to these guidelines.

METHODS

The audit was performed in two cycles between June 2009 and April 2010. In the first cycle, all diabetic patients undergoing elective cardiac surgery at The London Chest Hospital over a six month period were included.

Data was collected concerning the number of patients who underwent HbA1c testing pre-operatively and the management of individuals with a high level. A number of changes were implemented in the period after the first cycle. A second cycle was then carried out to assess the same parameters following these interventions.

RESULTS

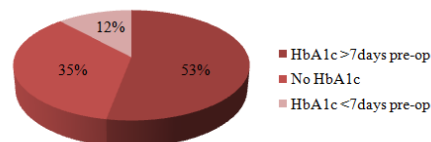
A total of one hundred and three patients were involved in the audit process with sixty-eight in the first cycle and thirty-five in the second. The percentage of patients undergoing HbA1c measurement pre-operatively improved from 65% in phase one to 100% in phase two.

Further analysis showed that of the 44 patients who underwent HbA1c testing in the first phase, 11 had a level above 8% requiring referral to the diabetic team. Unfortunately, only one of these patients was referred pre-operatively. Following the strategies for change however, referral rates were shown to increase from 9 to 85%.

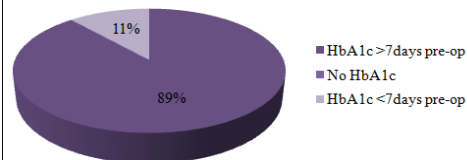
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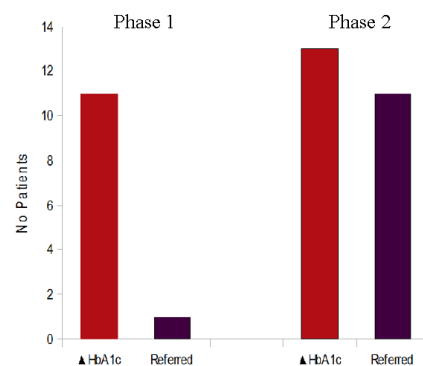
Pre-operative HbA1c: Phase 1



Pre-operative HbA1c: Phase 2



Poor Diabetic Control and Referral Numbers



STRATEGIES FOR CHANGE

A number of interventions were identified following phase one:

- a. A new protocol was implemented in the outpatient department for the HbA1c blood sample to be taken at the time of decision for surgery. By doing so, the result would now be available at the pre-assessment clinic.
- b. Facilitation of the availability of HbA1c results on the main pathology system in a timely fashion through discussion with the IT department.
- c. A new referral pathway was initiated from pre-assessment to the diabetic clinic. This was achieved through close co-ordination with the diabetic nurse specialist.

CONCLUSIONS

The first stage results clearly show that guidelines were not being followed in all elective cardiac surgery cases. However, a substantial improvement in both the percentage of patients tested and referral rates was shown when the loop was closed.

Our team has now demonstrated compliance with current guidelines. More importantly, those patients with poor diabetic control are now being referred to a specialist service to implement changes. The predicted outcome of this will be a reduction in the adverse events associated with diabetic patients undergoing cardiac surgery.

Through this audit process we have demonstrated that by implementing cost-neutral, organisational changes it is possible to convey substantial improvements in patient care. In order to elicit these benefits further the project is currently being taken forward to establish the effect of these changes on post-operative outcomes in this patient cohort.