



An Observational Review and Audit of the Treatment of Hypoglycaemic Events in a University Teaching Hospital



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1 INTRODUCTION

Hypoglycaemia is defined as a blood glucose (BG) <4 mmol / L¹. Hypoglycaemic events in hospital inpatients with Diabetes Mellitus have been associated with increased morbidity and mortality and increased length of stay². In the National Inpatient Diabetes Audit 2013, 15.8% of hospital in-patients had a diagnosis of diabetes³. Of those patients, 22% experienced at least one hypoglycaemic episode. Internationally, it had been reported that events were not treated as per evidence base².

2 AIMS & OBJECTIVES

- Determine the proportion of hypoglycaemic events treated in line with hospital protocol.
- Implement quality improvement initiatives.
- Determine whether implementation of quality improvement initiatives improved the management of hypoglycaemic events and compliance with local protocol.

3 METHODS

- Local ethical approval was obtained .
- The sample size was chosen to detect a 25% improvement with ±8% precision
- Baseline adherence to the hospital hypoglycaemic protocol was determined by analysis of 148 retrospective hypoglycaemic events which were observed in a sampling frame of 459 general medical and surgical inpatient beds over a five week period.
- Educational interventions were undertaken:
 - o An evidence based protocol was developed and approved by the Drugs and Therapeutics Committee (figure 1)
 - o Nursing Forum Presentation
 - o Medication Safety Alert and Hypoglycaemia Competition Quiz with prize were developed (figure 2)
- A reaudit was undertaken on 151 hypoglycaemic events using the same sampling frame assessing adherence to the new protocol

4 RESULTS

- 73% (n=108) of hypoglycaemic events in the baseline audit were treated with a short acting carbohydrate compared with 81% (n=123) in the reaudit (P>0.05).
- Lucozade® was the predominant short acting carbohydrate used to treat hypoglycaemic events throughout the study, (n=105, 71% in the baseline audit, n=119, 79% in the reaudit). Of those events treated with Lucozade®, 33% (n=49) were treated with the recommended amount in the baseline audit, increasing to 71% (n=106) in the reaudit (P<0.05) (figure 3).

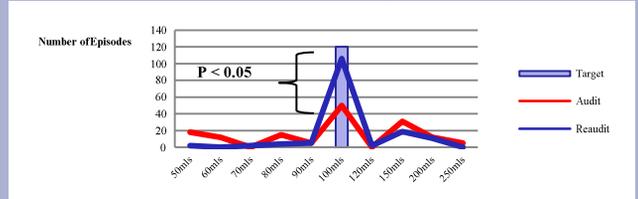


Figure 3. Amount of oral short acting carbohydrate administered – audit standard 100mls

- There was limited compliance with retesting of BG within 15 minutes in the baseline audit (repeated within 15 minutes in 9.5%; within 30 minutes in 25%). Compliance with retesting BG after 15 minutes improved significantly (P<0.05) in the reaudit (BG repeated within 15 minutes in 31%; within 30 minutes in 64% of events) (figure 4).

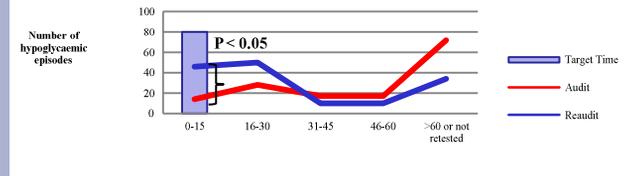


Figure 4. Time taken to retest blood glucose - audit standard = 15 minutes

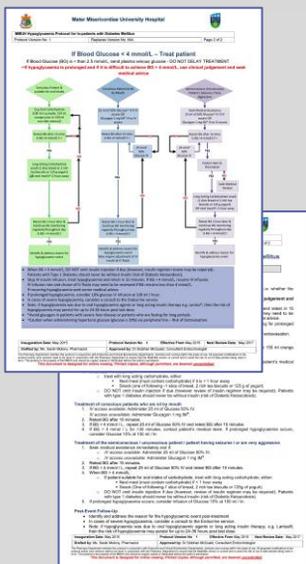


Figure 1. Newly developed MMUH Hypoglycaemia Protocol



Figure 2. Medication Safety Alert

CONCLUSION

- We established that hypoglycaemic events are common among our inpatients.
- The proportion of events that were treated in line with hospital protocol was low in the baseline audit.
- The provision of a clear, colour coded evidence based hypoglycaemia protocol and a multifaceted educational drive, improved management of hypoglycaemia, in particular the amount of short acting carbohydrate given and time to BG retesting. This has improved patient safety.
- Continued improvement initiatives are required.

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3. National Diabetes Inpatient Audit information relating to health. 2013. Cited Sept 16th 2014. Available from www.diabetes.org.uk.

DISCLOSURE:

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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