Effect of Intraoperative Single Dose of Dexamethasone for Control of Post Operative Nausea on the Management of Diabetic Patients

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Objectives

To examine whether diabetic patients receiving decadron (dexamethasone) intraoperatively for control of post operative nausea and vomiting **may** be at greater risk of rising blood glucose level during and after surgery compared to those receiving other anxiolytic medications.

Background

- Post operative glycemic control in diabetic patients is challenging
- Decadron is used intraoperatively by anesthesia to reduce post-operative nausea and vomiting
- Decadron adds a unique challenge to glycemic control
- Should decadron be used in the diabetic patient who is undergoing surgery?
- This study examined the use of decadron intraoperatively in the diabetic patient and post operative glycemic control

Educational Design/Methods

- Retrospective Data
- Data examined from: January 2015–June 2016
- Population: Diabetic patients undergoing general anesthesia for various surgical procedures who were hospitalized post-operatively for at least 24 hours
- Patients were classified into two groups—those who received decadron (the intervention group) intra-operatively and those who did not (the control group).

Data Collection/Analysis

- The patients were analyzed for blood glucose changes during and following the procedure
- Alpha = 0.05, Power = 0.9
- A multiple regression analysis was conducted to determine if there was any association between the use of decadron and blood glucose changes
- Statistical analysis adjusted for demographic, clinical, and operative differences such as baseline glucose level and the administration of insulin

Outcomes / Results

- A total of n = 354 diabetic patients were included in the study
- n = 119 (33.6%) received decadron (treatment group)
- n = 235 (66.4%) did not receive decadron (control group)
- The decadron group had significantly lower preoperative blood glucose of 147.3 mmol/L
- The control group who did not receive decadron had preoperative blood glucose level of 187.9 mmol/L (p=0.04)
- Lower proportion of decadron patients who had received insulin during surgery (14.9%) compared to the control group (23.4%) (p=0.04)
- No differences observed for Gender, steroids, age, BMI or surgery time.
- Glucose levels declined from preop to post op day #1 by an average of 9.6 mmol/L (62.9) (p=0.007)
- Among patients receiving insulin, the decadron group demonstrated a increase in glucose by 64 mmol/L compared to controls which declined by 14 mmol/L (p=0.006)
- Among patients who did not receive insulin, the decadron group demonstrated increase in glucose 33mmol/L compared to controls 2mmol/L (p=0.0003).

Discussion

The use of dexamethasone raises the question of hyperglycemia intra and post operatively for diabetic patients thus making management of glycemic control more difficult among these patients. What remains unclear is whether the above changes, though short lived (36-72 hours following surgery), are significant enough to alter the patient outcome.

Our study evaluated the changes in blood glucose associated with a single intravenous injection of 8mg of dexamethasone intra-operatively. We observed no impact of patient age, sex, ASA score, or BMI on the outcome of the glucose in either group (dexamethasone or control). Pre-operative use of steroid therapy for pre-existing medical condition by our patients did not have a significant impact on the result. However, the numbers were small (n = 25) and the effect is difficult to assess.

The patients who were treated with dexamethasone demonstrated a significant increase in the blood glucose level over the course of surgery as well as the post-operative period. Patients treated with dexamethasone whose surgery lasted more than 2 hours and who received intra-operative insulin per glycemic protocol showed a significant increase in blood glucose levels intra-operatively and post-operatively compared to their preoperative glucose levels. This was in comparison with the those who did not receive dexamethasone. In each category, whether insulin was given intra-operatively or not, the dexamethasone effect on blood glucose was intense and increased the glucose level compared to those who did not receive the steroid therapy.

Conclusions and Implications

Diabetic patients receiving dexamethasone for control of post-operative nausea during surgery are at greater risk for increasing blood glucose levels and difficult glycemic control during and after surgery compared to patients receiving other medications to control post-operative nausea.

References and/or Acknowledgements