Abstract

The benefits of controlling blood glucose levels in intensive care units (ICUs) are well documented. Objective: This study determined the effectiveness and safety of a standardized transition order set for converting a continuous insulin infusion to a subcutaneous insulin regimen in non-cardiovascular surgery ICUs patient population. Methods: A retrospective study was conducted. Patients presenting with diabetic ketoacidosis or hyperosmolar hyperglycemic syndrome were excluded. One hundred patients were included prior to and 100 patients were included after initiating the transition order set. Blood glucose control was reviewed for up to 72 hours following the transition. Results: A total of 115 patients were included in data analysis: 85 prior to and 30 after transition protocol. All patients transitioned using the protocol were transitioned to basal insulin, compared to only 40% of the prior to protocol group. Patients transitioned correctly per the transition order set, "per protocol," had 54% of blood sugars within the desired range, no increase in hypoglycemic events, and on average 5.56 hyperglycemic events (blood glucose >180 mg/dL) per person during the 72 hours compared to 6.68 and 9.00 for the prior to protocol group and the "off protocol" group (transitioned different than the protocol recommended), respectively (p= 0.05). There were significant differences in blood sugar control at 48 and 72 hours between the "per protocol" and "off protocol" groups (p= 0.01) and a 40% reduction in sliding scale or correctional insulin coverage. Conclusion: The addition of basal insulin to transition regimens resulted in fewer hyperglycemic events with no increase in hypoglycemic events. Patients transitioned "per protocol" had better glucose control demonstrated by: less hyperglycemic events, lower mean blood glucose levels at 48 and 72 hours, and lower need for correctional insulin. These findings showed benefits of glycemic control in the ICU by following a standardized transition protocol.

Keywords

Insulin, Blood Glucose, Intensive Care Units, Postoperative Care, United States.