

Study on the Situation of Hyperglycemia in MICU by the Glucose Management Team with Internet Glucose Monitoring System

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Background

Hyperglycemia usually occurs in critically ill patients, but it is often not effectively controlled. Hyperglycemia is an independent risk factor for death. Therefore, how to control hyperglycemia is very critical. The purpose of the study is to find a more effective method to control blood glucose of critically ill patients.

Objective

To study the effect of the mode of inpatient blood glucose management team combined with internet-based glucose monitoring system (IGMS) on the situation of hyperglycemia quality control in Medical Intensive Care Unit (MICU) patients.

Methods

The study included hyperglycemia patients from July 1, 2018 to December 31, 2018 in MICU, it used the mode of inpatient blood glucose management team combined with IGMS to control hyperglycemia actively; hyperglycemia patients from July 1, 2017 to December 31, 2017 in MICU were treated with routine consultation control mode to control hyperglycemia. Two different control modes were compared according to the average blood glucose, average number of blood glucose measurement per person per day, incidence of hyperglycemia (blood glucose > 7.8 mmol/L) and severe hyperglycemia (blood glucose > 16.7 mmol/L), incidence of hypoglycemia (blood glucose ≤ 3.9 mmol/L) and severe hypoglycemia (blood glucose ≤ 2.2 mmol/L), the control rate of target blood glucose, the detection rate of glycosylated hemoglobin, the mortality of hyperglycemic patients. For comparisons between the two groups, independent samples t-test was used for continuous variables, and the rank sum test was used for non-normally distributed variables. χ^2 tests were used to compare the rate between two groups. P values < 0.05 were considered statistically significant.

Results

There was no significant difference in age, gender and the proportion of patients with diabetes history between the two groups. Compared with routine consultation group, team management group had lower average blood glucose level (mmol/L) (10.12 ± 4.86 vs 11.84 ± 5.24, P < 0.01), increased average number of blood glucose measurement per person per day (4.56 ± 1.5 vs 3.14 ± 2.1, P < 0.05), lower incidence of hyperglycemia (57.47% vs 75.59%, P < 0.01) and lower incidence of severe hyperglycemia (11.20% vs 17.73%, P < 0.01), no significant difference in the incidence of hypoglycemia (1.89% vs 1.70%, P > 0.05) and the incidence of severe hypoglycemia (0.45% vs 0.48%, P > 0.05), higher control rate of target blood glucose (77.03% vs 68.13%, P < 0.01), higher detection rate of glycosylated

hemoglobin (81.69% vs 63.08%, P < 0.01) and lower mortality of hyperglycemic patients (12.68% vs 15.38%, P < 0.01) (table 1).

Conclusion

The mode of inpatient blood glucose management team combined with IGMS could improve the situation of hyperglycemia in MICU patients effectively.

Table 1

	team management group (n=142)	routine consultation group (n=130)	P value
average blood glucose (mmol/L)	10.12±4.86	11.84±5.24	P < 0.01
average number of blood glucose measurement per person per day	4.56±1.5	3.14±2.1	P < 0.05
incidence of hyperglycemia (%)	57.47	75.59	P < 0.01
incidence of severe hyperglycemia (%)	11.20	17.73	P < 0.01
incidence of hypoglycemia (%)	1.89	1.70	P > 0.05
incidence of severe hypoglycemia (%)	0.45	0.48	P > 0.05
control rate of target blood glucose (%)	77.03	68.13	P < 0.01
detection rate of glycosylated hemoglobin (%)	81.69	63.08	P < 0.01
mortality of hyperglycemic patients (%)	12.68	15.38	P < 0.01

Key words

the mode of inpatient blood glucose management team; internet-based glucose monitoring system; hyperglycemia; Medical Intensive Care Unit