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Inpatients hyperglycaemic control by basal/bolus rapid-acting insulin injection.

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Background: Prandial bolus rapid-acting insulin injection based on sliding-scale insulin glycaemia control is an useful DM inpatients' treatment which increases hyper and hypoglycaemic events. Efficiency and safety of new therapeutic algorithm of glucose management using scheduled basal/bolus rapid-acting insulin injection in glycaemic control and prescribing habits of inpatients with hyperglycaemia were evaluated and compared to sliding-scale insulin glycaemia control.

Methods: Pre-post intervention study in consecutively admitted inpatients with DM and with no previous diagnosis of DM inpatients plus diagnostic criteria at admission (some blood samples with glycaemia >126 mg/dL or hyperglycaemia symptoms plus one sample with glycaemia >200mg/dL) was done at 3 breakpoints pre, and one and three years post-intervention and was compared to classical sliding scale insulin glycaemia control. Epidemiological, clinical (DM type, household income, clinical history, reason for admission), analytical data, treatments, and degree of glycaemic control (average of capillary levels pre-prandial in the last 72 h) were collected. Pre-intervention monitoring data were compared with post-intervention follow-up data.

Results: 1151 inpatients were included (58.6% male, 61.1 17 years aged, 84.4% type II DM). The prevalences of stable-hyperglycaemia preintervention and 1 and 3 years postintervention were 24.8%, 22.1% and 26.4%, respectivelity. The percentage of patients subjected to the new glycaemic control algorithm has increased progressively from 11% to 52.8% and 62.9% along the follow-up. No significant changes were detected in the last 72 h glycaemia absolutes values. However an increased percentages of good glycaemic control (defined as glycaemia between 100-140 mg/dL) close to 30%, 31.3% and 38.6% (p<0.05) were recorded preintervention and 1 and 3 years postintervention. One year post-intervention hypoglycaemia events were reduced comparing to pre-intervention values (6.98% vs. 13.5%, -50%, p<0.05). Unfortunately it returned to previous values after three years of follow-up (12.1%). Hyperglycaemia deficient control was mainly associated to sliding scale insulin control based treatment during all the follow-up.

Conclusion: The scheduled basal/bolus rapid-acting insulin injection in glycaemic control of inpatients with hyperglycaemia was more effective, safety than the classical sliding-scale insulin glycaemia control. However greater disclosure and annual reinforcements of this new therapeutic protocol are necessary for improving outcomes and allow prescription habits changes.