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Do nondiabetic patients undergoing coronary artery bypass grafting surgery require intraoperative management of hyperglycemia?

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Abstract

OBJECTIVE: To study the effect of blood glucose (BG) control with insulin in preventing hyperglycemia during and after coronary artery bypass grafting (CABG) surgery in nondiabetic patients.

METHODS: In a randomized clinical trial, 120 nondiabetic patients who underwent elective CABG surgery were enrolled for study of whether the control of hyperglycemia was a need in such a surgery in a teaching heart hospital. The patients were randomly divided into study (n=60) and control (n=60) groups. In the study group, insulin was infused to maintain BG level between 110 mg/dL and 126 mg/dL (a modified insulin therapy protocol, and in the control group, the patients were excepted). Insulin therapy was limited to intraoperative period. BG levels during surgery and up to 48 hours after surgery and early postoperative complications were compared between the study and control groups.

RESULTS: One hundred seventeen patients completed the study (59 patients in study group and 58 in control group). Peak intraoperative BG level in the study group was 126.4±17.9 mg/dL and in the control group was 137.3±17.6 mg/dL (p=0.024). The frequencies of severe hyperglycemia (BG≥180 mg/dL) were 6 of 59 (10.1%) in the study group and 19 of 58 (32.7%) in the control group during operation (p=0.002). Peak postoperative BG level in the study group was 194.8±41.2 mg/dL and was 199.8±43.2 mg/dL in the control group (p=0.571). There was no hypoglycemic event in either group. The frequencies of early postoperative complications were 10 of 59 (16.9%) in the study group and 19 of 58 (32.7%) in the control group (p=0.047).

CONCLUSIONS: Hyperglycemia (BG≥126 mg/dL) is common in nondiabetic patients undergoing CABG surgery. A modified insulin therapy to maintain BG level between 110 mg/dL and 126 mg/dL may be acceptable for avoiding hypoglycemia and keeping intraoperative BG levels in acceptable range in nondiabetics.

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