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Stress response to surgery under general anesthesia in type 2 diabetic patient

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Diabetic patients are considered to be at increased risk of preoperative morbidity and mortality because of the involvement of their vital organs and the autonomic nervous system in the natural course of the disease. Various aspects of anesthesia and surgery cause stress induced hemodynamic, endocrine and metabolic changes in type 2 diabetic subjects. The present study was designed to investigate the hemodynamic alteration and changes of blood glucose, C-peptide, cortisol and electrolytes in total abdominal hysterectomy of type 2 diabetic subjects under general anesthesia and also to investigate the stress response with some treatment variability. A total number of 100 subjects who were admitted in BIRDEM hospital in fit physical condition (ASA Class II & III) were selected for the present study. All subjects received total abdominal hysterectomy under general anesthesia. Three samples were collected from each subject. The first sample (control, PT₀) was collected just before anesthesia; second sample (PT₁) collected 10 minutes after incision and third sample (PT₂) collected 10 minutes after extubation. Plasma glucose was measured by glucose oxidase method, serum electrolytes by dry chemistry, serum C-peptide and cortisol by chemiluminescent based ELISA technique. The data suggest that:

- adequate glycemic control in type 2 diabetic patients helps in maintaining hemodynamic stability during lower abdominal surgery under general anesthesia. The stability is probably due to lack of neuropathy in well controlled diabetes
- lower abdominal surgery under general anesthesia in well controlled type 2 diabetic subjects is accompanied by a hyperglycemic response which results from rise of insulin antagonists like cortisol rather than fall of insulin secretion
- insulin treatment alone is more effective than insulin-OHA combination to control blood glucose in type 2 diabetic subjects undergoing surgery under general anesthesia; but the two treatment modalities lead to similar cortisol response, and
- coexisting hypertension is associated with insulin hyposecretion leading to hyperglycemia in type 2 diabetic patients undergoing surgery under general anesthesia.

Biography

Kawsar Sardar MBBS, MD, Associate professor and pain consultant, Department of Anaesthesiology, BIRDEM General Hospital and Ibrahim Medical College, Dhaka, Bangladesh. He did several fellowships training in abroad on Interventional Pain Management and Liver Transplant Anaesthesia. He is the present joint secretary and immediate past organizing secretary of Bangladesh Society of Anaesthesiologists. He is also the EC member of Bangladesh Society of Study of Pain. He is renowned for introducing the advanced interventional pain procedures in Bangladesh and first anaesthesia provider for liver transplant in Bangladesh. He is editorial board member of the book "Clinical Methods in Pain Medicine". He reviewed a lot of articles from famous index journals. He is Assistant Editor of Journal of BSA and member of editorial board of Global Journal of Anaesthesia. About 28 articles have been published in Index and ISSN journals in home and abroad. He is routinely invited as speaker from different international conferences.

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