44239 - EPIDURAL ANESTHESIA AND ANALGESIA FOR KNEE ARTHROPLASTY DECREASES THE POSTOPERATIVE INCIDENCE OF INSULIN RESISTANCE ONLY IN PREOPERATIVE INSULIN-RESISTANT SUBJECTS

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INTRODUCTION: Insulin resistance (IR) is a feature of the endocrine stress response to surgery. It is not known whether a preoperative state of IR would affect the postoperative endocrine response. The present study was set to characterize the preoperative state of IR in a group of patients undergoing elective hip and knee arthroplasty, and to determine to what extent perioperative epidural analgesia modifies the postoperative state of IR in those who are and are not insulin-resistant before surgery.

METHODS: Local IRB approval was obtained for this study. Sixty patients undergoing either hip or knee arthroplasty were screened by using the Homeostatic Model Assessment (HOMA) in two populations: insulin-resistant patients (RP) and non insulin-resistant patients (NP) whereas HOMA is fasting insulin (mU/ml) x fasting glucose (mmol/L) / 22.5. The patients belonging to each population were then randomly assigned to receive either intraoperative epidural blockade followed by postoperative epidural analgesia (epidural group) or general anesthesia followed by PCA (control group). Analgesia was assessed with Visual Analogue Score (VAS) up to 48-hours after surgery and HOMA was repeated at the end of surgery and 48-hours after surgery to determine the postoperative state of insulin resistance.

RESULTS: Epidural anesthesia and analgesia influenced significantly the postoperative HOMA score (lower proportion of IR) in the postoperative period only in those patients who were RP before surgery ($P < 0.01$). In contrast, NP patients had a similar postoperative proportion of IR between the epidural and control groups ($P > 0.05$). At rest and during movements VAS was not different between groups at the end of surgery and in the first and second days after surgery.

DISCUSSION: Epidural anesthesia and analgesia compared to general anesthesia followed by PCA decreased the incidence of insulin resistance soon after surgery and 48-hours after surgery only in patients who were insulin-resistant before surgery.

Figure 1. Proportion of insulin-resistant patients throughout the study period

RP = insulin resistant patients before surgery. NP = non-insulin resistant patients before surgery.
epidural = epidural group. control = control group.

© = $p < 0.05$ vs RP epidural and both NP (control and epidural)

= $p < 0.05$ vs before surgery

* = $p < 0.05$ vs post-anesthesia care unit