44368 - EPIDURAL ANESTHESIA REVERTS THE LOSS OF BODY PROTEIN IN DIABETIC PATIENTS UNDERGOING COLON RESECTION

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INTRODUCTION: Surgical injury induces an endocrine-metabolic stress response, resulting in a catabolic state, for which insulin resistance appears to contribute extensively. It has been suggested, that type 2 diabetes mellitus (DM2) amplifies the stress response, since these patients suffer from similar metabolic derangements (1) Epidural blockade improves substrate utilization after surgery in non-diabetic patients by reducing the intensity of the catabolic response. The aim of this study is to test the anti-catabolic properties of perioperative epidural analgesia in patients with DM2 undergoing colorectal surgery compared to patient controlled analgesia (PCA) in a fasted state and during intravenous administration of amino acids.

METHODS: Local IRB approval was obtained for this study. 12 diabetic patients undergoing colorectal surgery were randomized to epidural analgesia (EDA group) or PCA (PCA group) for perioperative pain control. On the day before surgery a 2h stable isotope infusion study during a fasted state and on the second day after surgery a 5h stable isotope infusion study (2h fasted, 3h amino acid infusion at 0.02ml/kg/min (equivalent to 2.9g/kg/day)) were performed to measure protein kinetics using L-[1-13C]leucine.

RESULTS: Preoperative parameters for protein kinetics were comparable in both groups in the fasted state. Amino acid infusion increased the rate of appearance of leucine ($p=0.002$), leucine oxidation ($p<0.0001$) and protein synthesis ($p=0.026$) while net protein breakdown was decreased ($p=0.002$), leading to a positive protein balance ($p<0.0001$). In the EDA group, leucine oxidation and protein balance during amino acid feeding were higher than in the PCA group ($p=0.027$). The test for statistical differences between treatment groups for leucine oxidation and protein balance had a p-value of 0.7264 for the fasted state and a p-value of 0.023 for the fed state.

DISCUSSION: A short term infusion of amino acids postoperatively blunts protein breakdown and stimulates protein synthesis, resulting in positive protein balance with a significantly greater effect in patients with epidural blockade compared to patients with PCA.

REFERENCES:

1. Anesthesiology 2005;102:320-6.