

# Surgical trauma and insulin resistance

Polovina S, Sumarac-Dumanovic M, Kendereski A, Gligorijevic J, Cvijovic G, Zoric S, Stamenkovic-Pejkovic D, Micic D, Jeremic D, Gligic A, Micic D.

Clinic for Endocrinology, Diabetes and Diseases of Metabolism, Clinical Center of Serbia  
School of Medicine, University of Belgrade, Serbia

## OBJECTIVES

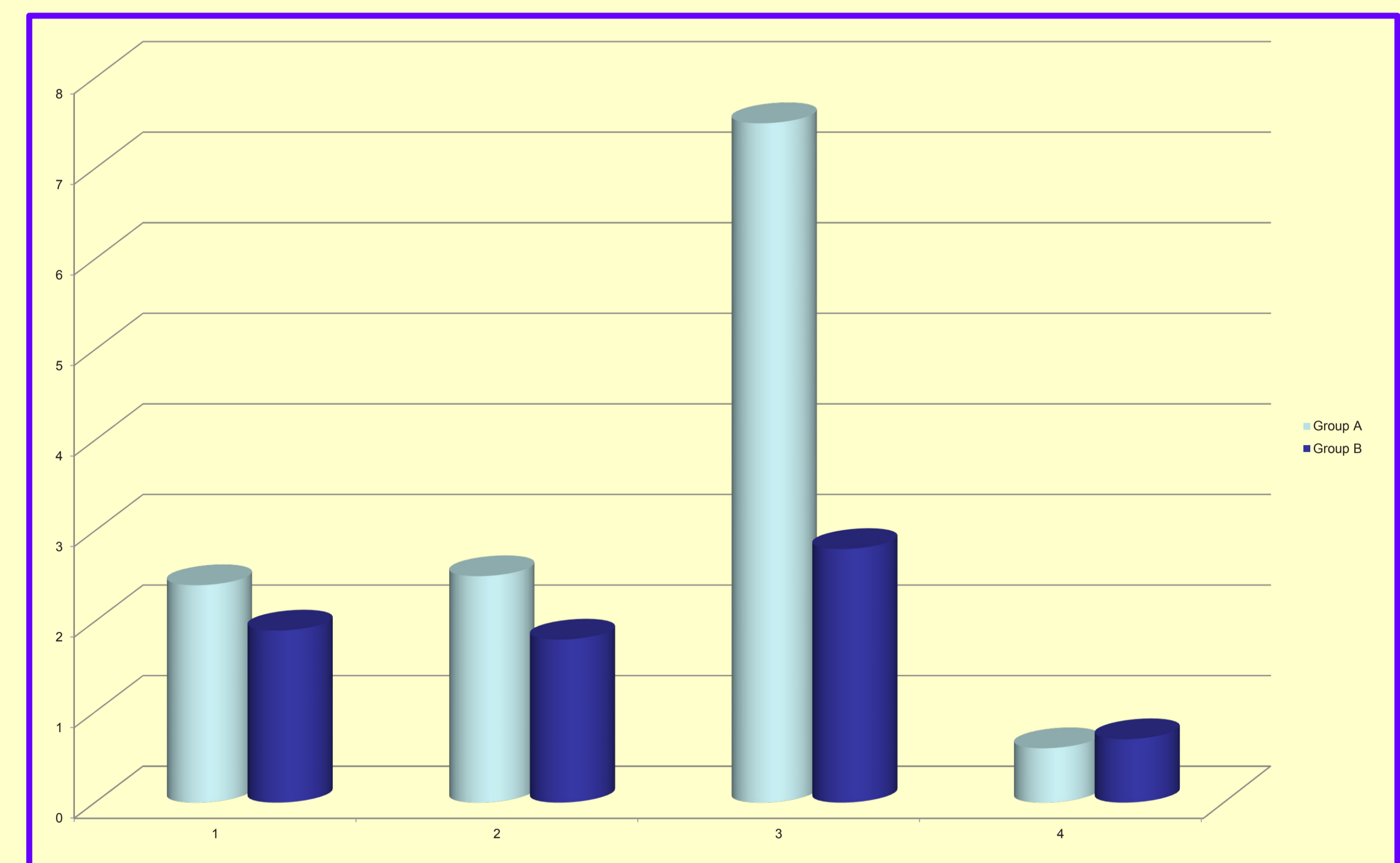
Different surgical procedures are followed by alteration in insulin sensitivity. The aim of our investigation was to analyse the influence of major (open cholecystectomy) and minor surgical stress (laparoscopic cholecystectomy) on insulin resistance.

## METHODS

Insulin resistance was calculated by HOMA IR before surgery and at first, third and seventh day after the elective operations. All participants were divided into two groups: group A with open cholecystectomy  $n=20$ ;  $38.8 \pm 4.3$  years of age; mean BMI  $26.9 \pm 1.6 \text{ kg/m}^2$  and group B with laparoscopic cholecystectomy;  $n=20$ ;  $39.8 \pm 4.5$  years of age; mean BMI  $26.8 \pm 1.9 \text{ kg/m}^2$ .

## RESULTS

There were no differences in HOMA IR between group A and group B before surgery (mean  $2.5 \pm 0.33$  vs.  $1.99 \pm 0.70$ ;  $p > 0.05$ ) as well as the first day after surgery ( $2.55 \pm 0.62$  vs.  $1.85 \pm 0.58$ ;  $p > 0.05$ ). HOMA IR was higher in group B third day after operation than in group A ( $7.56 \pm 2.34$  vs.  $2.8016 \pm 0.78$ ;  $p < 0.05$ ). There were no differences between two groups seven days after surgery ( $0.65 \pm 0.45$  vs.  $0.74 \pm 0.40$ ;  $p > 0.05$ ).



## CONCLUSIONS

Open and laparoscopic cholecystectomy are followed by transient insulin resistance which becomes normal a week after the operation. Laparoscopic cholecystectomy less deteriorates insulin sensitivity in response to stress than the open approach.

## References:

- Schricker T, Lattermann R. [Perioperative catabolism](#). Can J Anaesth. 2015 Feb;62(2):182-93. doi: 10.1007/s12630-014-0274-y.
- Carli F. [Physiologic considerations of Enhanced Recovery After Surgery \(ERAS\) programs: implications of the stress response](#). Can J Anaesth. 2015 Feb;62(2):110-9. doi: 10.1007/s12630-014-0264-0.
- Pontiroli AE, Benetti A, Folini L, Merlotti C, Frigè F. [Other aspects of bariatric surgery: liver steatosis, ferritin and cholesterol metabolism](#). Nutr Hosp. 2013 Mar;28 Suppl 2:104-8.

