

The effects of pre-emptive intravenous ibuprofen on the thiol/disulfide homeostasis and C-reactive protein level as the markers of oxidative stress and inflammation during gynecologic laparoscopy: A randomized clinical trial

Ersin Kahraman¹, Banu Eler Cevik², and Kemal Tolga Saracoglu²

¹Kartal Dr. Lütfi Kırdar City Hospital

²Kartal Dr.Lütfi Kırdar City Hospital

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Abstract

Aims: In this study, we aimed to investigate the anti-inflammatory and antioxidant effects of intravenous ibuprofen by using the C-reactive protein level and thiol/disulfide homeostasis as the oxidative stress marker. **Materials and Methods:** This study was conducted on 70 patients aged between 30 and 65 who were scheduled for elective laparoscopic hysterectomy. The patients were divided into two groups to receive either preemptive 800mg of intravenous ibuprofen plus 1000 mg of intravenous paracetamol (Group IP) or only 1000 mg of intravenous paracetamol as a control group (Group P). The blood samples for thiol/disulfide homeostasis were collected as follows; before induction of anesthesia (T0), before pneumoperitoneum (T1), following post-deflation and discontinuation of anesthesia (T2) and postoperative 24th hour (T3). Simultaneous blood samples for C-reactive protein were also collected. The pre and postoperative urea, creatinine, alanine aminotransferase (ALT), and aspartate aminotransferase (AST) levels were measured. **Results:** A total of 69 patients were included in the study. The patient's characteristics and intraoperative variables were comparable between groups ($p > 0.05$). The number of patients requiring rescue analgesia, the total amount of analgesic used, VAS scores, and postoperative side effects were significantly lower in Group IP ($p < 0.001$). There decrease in native and total thiol levels at T1, T2, T3 measurement points was significant in Group IP ($p < 0.001$). In both groups, the comparison to baseline values demonstrated no significant changes in terms of disulfide level ($p > 0.05$). The simultaneous CRP levels indicated a significant increase at the postoperative 24th hour in both groups ($p < 0.001$). The difference between groups was insignificant ($p > 0.05$). There was a significant increase in urea and creatinine levels in patients of Group IP ($p < 0.05$). **Conclusion:** The pre-emptive administration of ibuprofen provided an effective pain control after gynecologic laparoscopy. However, ibuprofen changed the thiol/disulfide homeostasis in favor of oxidation and had no beneficial effect in surgically induced oxidative stress.

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