

Letter to the Editor

Effects of postoperative, nonsteroidal, antiinflammatory drugs on bleeding risk after ortopedic surgery

Dear Editor,

Diclofenac as non-steroidal anti-inflammatory drug (NSAID) is used in the preoperative and perioperative period for analgesia, for reduction of inflammation and reduction of oedema before major orthopaedic procedures¹. Investigation included 480 patients who were to undergo elective total hip replacement for coxarthrosis during intrathecal and general anaesthesia. Patients were allocated and randomized to four equal groups of 120 patients. Group 1 and 2 which were pretreated with diclofenac and operated in general and regional anaesthesia. Group 3 and 4 which weren't pretreated with any analgesic drugs and operated in general and regional anaesthesia. Two groups of patients (who were operated in general and regional anaesthesia) were pretreated before surgery with diclofenac i.v., on a day before and on a day of surgery. Diclofenac injection were given i.v. three times a day. Other two control group (who were operated in general and regional anaesthesia) didn't get any analgesic drug. All operations were performed by the same orthopaedic surgeons team. The two groups did not differ for age, height, weight or gender. There was no difference in the duration of surgery in either group. The volume of blood loss was significantly higher in patients pretreated with diclofenac than with placebo. The volume of blood loss was higher in patient operated in general anaesthesia in both groups, but the blood loss wasn't statistically significant. The volume of perioperative blood loss was 47.1% greater in the diclofenac group in general anaesthesia and 66% greater in patients operated in regional anaesthesia compared with the placebo groups ($p < 0.05$). The measured blood loss in the first 24 h after surgery also showed a 21.8% higher blood loss in the diclofenac group in general anaesthesia and 18.5% higher in patients operated in regional anaesthesia compared with the placebo groups. This was not statistically different. The overall blood loss, i.e. the perioperative blood loss plus the blood loss in the first 24 h after surgery, showed an increase of 69.4% in the diclofenac group operated in general anaesthesia and increase of 32.9% in patients operated in regional anaesthesia ($p < 0.05$). The overall blood loss, i.e. the perioperative blood loss plus the blood loss in the first 24 h after surgery, in general anaesthesia compared to regional anaesthesia showed an increase of 10, 4% in the diclofenac group and increase of 7.2% placebo group. This was not statistically significant. Also measured perioperative blood loss and blood loss during first 24 h showed not statistically different. The study had an 86% power to demonstrate a 45% difference in expected blood loss at a $p = 0.05$ level of significance. The number of homologous blood transfusions was nineteen in the diclofenac group and sixteen in the placebo group (not significant) during the whole period the patients remained in the hospital^{2,3}. McCormack and Scott⁴ and Shakeel and Ahmad⁵ finds that pretreatment with ibuprofen before elective total hip surgery increases the perioperative blood loss significantly.

Considering the presence of relevant adverse effects, pretreatment with a non-selective NSAID is not recommended.

Conflict of Interest

The Authors declare that they have no conflict of interests.

References

- 1) RILEY GP, COX M, HARRALL RL, CLEMENTS S, HAZLEMAN BL. Inhibition of tendon cell proliferation and matrix glycosaminoglycan synthesis by non-steroidal anti-inflammatory drugs in vitro. *J Hand Surg Br* 2001; 26: 224-228.
- 2) MIYATAKE S, ICHIYAMA H, KONDO E, YASUDA K. Randomized clinical comparisons of diclofenac concentration in the soft tissues and blood plasma between topical and oral applications. *Br J Clin Pharmacol* 2009; 67: 125-129.
- 3) DAVIS NM. A profile of pharmacy service directors in primary medical school hospitals. *Hosp Pharm* 1979; 14: 184-189.
- 4) MCCORMACK PL, SCOTT LJ. Diclofenac sodium injection (Dyloject): in postoperative pain. *Drugs* 2008; 68: 123-130.
- 5) Shakeel H, Ahmad TS. Steroid injection versus NSAID injection for trigger finger: a comparative study of early outcomes. *Hand Surg Am* 2012; 37: 1319-1323.

L. Gvozdenović, V. Dolinaj, B. Ilić, M. Vojnović

Faculty of Medicine, University of Medicine, Clinical Center of Vojvodina, Novi Sad, Serbia