Beneficial postoperative micro-rheological effects of intraoperative administration of NSAID in patient underwent lower extremity operations

Bela Turchanyi1, Csaba Körei1, Viktoria Sogor2, Norbert Nemeth2

1Department of Traumatology and Hand Surgery, University of Debrecen, Hungary

Ischemia-reperfusion (I/R) may have an adverse effect on blood rheological parameters that has been demonstrated by clinical and experimental data. Worsening in micro-rheological parameters, such as red blood cell (RBC) aggregation, deformability (including membrane stability and osmotic gradient deformability), and the consequent microcirculatory deterioration might act as factors in postoperative complications. In this study (ethical permission nr.: DEOEC RKEB/IKEB 3848-2013) we investigated these parameters in patients (average age: 54.7 years) with elective knee surgery (total knee replacement or anterior crucial ligament replacement). The average ischemic (tourniquet) time was: 92±15 mins. Seven patients did not receive NSAID (Control group), while 5 patients received 4 mg/bwkg sodium-diclophenac from the beginning of the reperfusion, which was repeated in the postoperative (p.o.) period (NSAID group). Blood samples were collected from the femoral vein of the operated side before the ischemia, in the 5th and the 10th minutes of the reperfusion and on the 1st and 2nd p.o. day. RBC deformability decreased by the 1st and 2nd p.o. day in Control group. RBC aggregation index (AI%) increased by the 2nd day, aggregation half-time decreased. Light-transmission aggregometry indices increased by the 1st, and more expressively by the 2nd day in Control group. Administration of NSAID could diminish the postoperative micro-rheological deterioration after lower extremity I/R.