

## **INFLUENCE OF REGIONAL ANAESTHESIA ON RESPIRATORY EFFICIENCY IN PATIENTS AFTER TOTAL HIP ARTHROPLASTY**

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Total hip arthroplasty (THA) is a standard therapeutic procedure in hip arthrosis. For the purpose of performing THA the two most common neuraxial techniques used are spinal (intrathecal) anaesthesia and epidural anaesthesia. Majority of total hip arthroplasty is performed in older patients with some level of respiratory distress, which appears to be a severe risk factor for respiratory complications and potential embolism. The aim of this study was to evaluate the influence of type and level of regional anaesthesia on respiratory efficiency in patients after THA. The study included 50 THA patients who showed respiratory compromise on preoperative examination. The control group consisted of 50 patients with no respiratory problems diagnosed before the procedure. Both, in patient and control groups, lungs vital capacity (VC) was measured 1 day before the operation, on the operation day 1 hour before the procedure started, 1 hour after the procedure completed and every 8 hours during the first 5 postoperative days. In addition, examination of full blood count was performed before the operation, 1 hour after the operation and then every 8 hours during the first 5 postoperative days. In order to determine blood oxygen and carbon dioxide levels as well as acid-base equilibrium, blood pH, CO<sub>2</sub> partial pressure (pCO<sub>2</sub>), total serum carbon dioxide content (TCO<sub>2</sub>), O<sub>2</sub> partial pressure (pO<sub>2</sub>), O<sub>2</sub> saturation (Sat O<sub>2</sub>), buffer base (BB) and normal buffer base (NBB) were measured. Decline of respiratory efficiency 1 hour before and 1 hour after the procedure was observed in the whole population of 100 patients. Vital lung capacity (VC) and gasometry gradually regained preoperative values. However, in the patient group they were on average 46% lower than in the control group. Moreover, authors found influence of respiratory efficiency and function on gasometry values measured during anaesthesia and on the first postoperative day. Compared with control group, venous blood pH was on average 2.14 lower and pCO<sub>2</sub> increased, which proves persisting acidosis, hiperkalaemia and metabolic disorders such as decreased blood flow and increased platelet aggregation and propensity do microembolism. Above changes were coupled with lower pCO<sub>2</sub> by 2.1 mmol/l, partial O<sub>2</sub> pressure by 6.7 mmHg and 50% saturation in venous blood as compared with the control group. Results show influence of preoperative respiratory function on vital lung capacity as well as oxygen and carbon dioxide blood transport. Preoperative evaluation of respiratory efficiency in patients demanding THA may constitute one of risk predictors for propensity to embolism in those patients.