**Abstract** *(in English – Times New Roman 12 - max. one page)* Deadline for receipt: March 31, 2024

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| Title: Comparison between periarticular infiltration, pericapsular nerve group and suprainguinal fascia iliaca blocks on postoperative pain trajectory in hip arthroplasty: preliminary results from a randomized clinical study.Author(s): C Noirfalisse, MD 1, M Carella, MD, PhD 1,2, F Beck, MD 1,3, N Piette, MD 1,2, JP Lecoq, MD, PhD 1,2, V Bonhomme, MD, PhD 1,3.Affiliation of author and co-authors:1 Department of Anesthesia and Intensive Care Medicine, Liege University Hospital, Liege, Belgium; 2 Inflammation and Enhanced Rehabilitation Laboratory (Regional Anesthesia and Analgesia), GIGA-I3 Thematic Unit, GIGA-Research, Liege University, Liege, Belgium; 3 Anesthesia and Perioperative Neuroscience Laboratory, GIGA-Consciousness Thematic Unit, GIGA-Research, Liege University, Liege, BelgiumHospital/Institute: Department of Anesthesia and Intensive Care Medicine, Liege University Hospital, Liege, Belgium |
| **Objective:** To compare the efficacy of supra-inguinal fascia iliaca block (SFIB), pericapsular nerve group block (PENG), and periarticular surgical infiltration (PAI) at controlling postoperative pain in patients undergoing total hip arthroplasty (THA).**Background:** THA commonly leads to significant acute postoperative pain, typically peaking within the initial 24 hours following the procedure.1 Recent procedure-specific guidelines recommend SFIB or PAI to manage the postoperative pain trajectory.2 PENG block has also demonstrated efficacy in this context.3 The objective of this study was to evaluate the impact of these techniques on both resting and dynamic pain levels within the initial 24 hours following THA.**Methods:**  Between January 11and May 10,2023, 47 patients scheduled for THA were enrolled in this prospective, double-blinded, randomized, controlled trial. The Trial was approved by the ‘Comité d’Ethique Hospitalo-Facultaire Universitaire de Liège (study number: 2022/174), and registered in the European Clinical Trial Register (EudraCT:2022-002250-97). Consenting patients were randomized into three groups. All patients received spinal anesthesia. According to group allocation, patients received either SFIB [40mL ropivacaine 0.375% (SFIB group, 16 patients) or saline (PAI group, 15 patients)], or PENG block [20mL ropivacaine 0.75% (PENG group, 16 patients) or saline (PAI group)]. All patients received PAI [40mL ropivacaine 0.375% (PAI group) or saline (SFIB and PENG group)]. A blinded observer recorded the progression of both resting and mobilization pain using a 0 to 10 numeric rating scale at predetermined time intervals: 6 hours post-surgery, and at 8 a.m., 1 p.m., and 6 p.m. on the first day following surgery. The total morphine consumption during the first 48 hours was also recorded. Data were analyzed using Kruskal-Wallis, ANOVA one-way or generalized linear mixed model tests, with statistical significance set at a two-tailed P-value <0.05.**Results:**  Demographic characteristics were comparable between groups. No significant interaction between time and group was found for rest (*F*(5.7/126.2)=0.83; *P*=0.55), or dynamic (*F*(3.7/81.6)=0.3; *P=*0.86) pain as assessed by the NRS during the first 24 hours after surgery. Total morphine consumption [mg, mean (SD)] during first postoperative 48 hours was similar between groups [7.4 (3.3) vs 7.8 (2.3) vs 8.4 (2.4) for PENG, SFIB and PAI groups, respectively; *P =* 0.6]. **Conclusions:** In THA, PENG, PAI, and SFIB ensure a similar postoperative pain trajectory both at rest and during mobilization, without difference in total postoperative morphine consumption. These results need to be confirmed once the planned sample size of the study (219) will have been recruited.**Declaration of interests:** The authors declare having no conflict of interest to disclose in relation with this work.**Funding:** This work was supported by the Department of Anesthesia and Intensive Care Medicine, Liege University Hospital, Liege, Belgium**References:** 1. Panzenbeck P, von Keudell A, Joshi GP, et al. Br J Anaesth. 2021 Jul;127(1):110-132; 2. Anger M, Valovska T, Beloeil H, et al. Anaesthesia. 2021 Aug;76(8):1082-1097; 3. Aliste J, Layera S, Bravo D, et al. Reg Anesth Pain Med. 2021 Oct;46(10):874-878. |