Title: Comparison of periarticular infiltration, pericapsular nerve group, and suprainguinal fascia iliaca blocks on postoperative quality of recovery 15-items and timed-up and go test in total hip arthroplasty: preliminary results from a randomized clinical study.

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Objective: To evidence eventual differences in quality of recovery (15-items scale, QoR-15) and walking performance among patients receiving total hip arthroplasty (THA) with spinal anesthesia (SA) and either a supra-inguinal fascia iliaca block (SFIB), a pericapsular nerve group block (PENG), or a periarticular surgical infiltration (PAI) as regional analgesia techniques.

Background: Multimodal analgesia is of pivotal importance for improving functional recovery after THA. Regional techniques such as SFIB, PENG, and PAI are key in this respect.[1] Assessing the interest of those techniques as best treatment option necessitates to measure patient-related outcomes.[2] The purpose of our study is to investigate possible differences between these 3 techniques with regard to functional recovery and patients' walking performance.

Methods: Between January 11 and May 10, 2023, 47 patients scheduled for THA were enrolled in this prospective, double-blinded, randomized, controlled trial. Approval was obtained from 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) before the first inclusion. All consenting patients received SA and were randomly divided into three groups. The SFIB group received additional SFIB (40mL ropivacaine 0.375%) and sham PAI, the PENG group received PENG (20mL ropivacaine 0.75%) and sham PAI, and the PAI group received either sham SFIB or PENG and real PAI (40mL ropivacaine 0.375%). A blinded observer recorded the QoR-15 1 day before surgery (D-1), and at day-1 (D1), day-2 (D2) and day-30 (D30) after surgery. The walking performance was assessed using the timed-up-and-go (TUG) test at D-1, and at D1 and D2. Data were analyzed using GLMM tests with Bonferroni correction for multiple comparisons. A two-tailed P-value <0.05 was considered statistically significant.

Results: Demographic characteristics were comparable between groups. A significant interaction between time and group was found for QoR-15 ($F_{(4.2/93.4)}$=6.74; P<0.001), but not for TUG ($F_{(3.4/75.2)}$=2.07; P=0.1). Post hoc comparisons for QoR-15 reveal that the interaction significantly favors the SFIB group over PAI due to a preoperative and not clinically relevant mean difference (95% CI) of 17.4 (33.1 - 1.8, P=0.02).

Conclusions: In THA, PENG, PAI and SFIB are equivalent regarding postoperative walking performance as tested by TUG and functional recovery as measured by the QoR-15 over first 30 postoperative days. These results need to be confirmed once the planned sample size of the study (219) will have been reached.

Declaration of interests: The authors declare having no conflict of interest to disclose in relation with this work.

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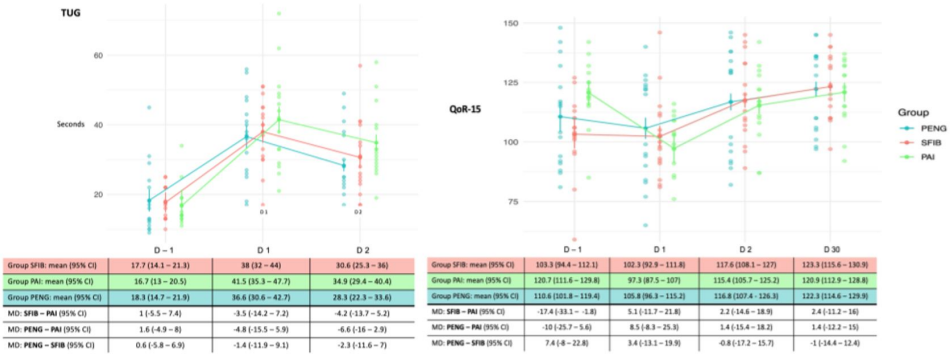

	D-1	D1	D2
Group SFIB: mean (95% CI)	17.7 (14.1 – 21.3)	38 (32 – 44)	30.6 (25.3 – 36)
Group PAI: mean (95% CI)	16.7 (13 – 20.5)	41.5 (35.3 – 47.7)	34.9 (29.4 – 40.4)
Group PENG: mean (95% CI)	18.3 (14.7 – 21.9)	36.6 (30.6 – 42.7)	28.3 (22.3 – 33.6)
MD: SFIB – PAI (95% CI)	1 (-5.5 – 7.4)	-3.5 (-14.2 – 7.2)	-4.2 (-13.7 – 5.2)
MD: PENG – PAI (95% CI)	1.6 (-4.9 – 8)	-4.8 (-15.5 – 5.9)	-6.6 (-16 – 2.9)
MD: PENG – SFIB (95% CI)	0.6 (-5.8 – 6.9)	-1.4 (-11.9 – 9.1)	-2.3 (-11.6 – 7)

	D-1	D1	D2	D30
Group SFIB: mean (95% CI)	103.3 (94.4 – 112.1)	102.3 (92.9 – 111.8)	117.6 (108.1 – 127)	123.3 (115.6 – 130.9)
Group PAI: mean (95% CI)	120.7 (111.6 – 129.8)	97.3 (87.5 – 107)	115.4 (105.7 – 125.2)	120.9 (112.9 – 128.8)
Group PENG: mean (95% CI)	110.6 (101.8 – 119.4)	105.8 (96.3 – 115.2)	116.8 (107.4 – 126.3)	122.3 (114.6 – 129.9)
MD: SFIB – PAI (95% CI)	-17.4 (-33.1 – -1.8)	5.1 (-11.7 – 21.8)	2.2 (-14.6 – 18.9)	2.4 (-11.2 – 16)
MD: PENG – PAI (95% CI)	-10 (-25.7 – 5.6)	8.5 (-8.3 – 25.3)	1.4 (-15.4 – 18.2)	1.4 (-12.2 – 15)
MD: PENG – SFIB (95% CI)	7.4 (-8 – 22.8)	3.4 (-13.1 – 19.9)	-0.8 (-17.2 – 15.7)	-1 (-14.4 – 12.4)

Figure: TUG and QoR15-15 one day before surgery (D-1), and at day-1 (D1), day-2 (D2) and day-30 (D30) after surgery. Within group means and between-group mean difference (MD) with 95% confidence intervals (95%CI) are provided in the tables below each figure. 95% CI of the mean difference indicates a statistically significant difference when not comprising the value 0.

References:

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By submitting this abstract, the first author certifies that all authors agree on its content and on its submission.