

## A STEP FORWARD IN THE MULTIMODAL REHABILITATION OF TOTAL KNEE ARTHROPLASTY

Susana Velásquez; Nuria Sierra; Esteban Díaz; Maria Jose Alvira; Isabel Belda; Espedito Brunetto; Pilar Lafarga; Mar Monerris; Astrid Alvarez Hospital Sagrat Cor, Barcelona-Spain.

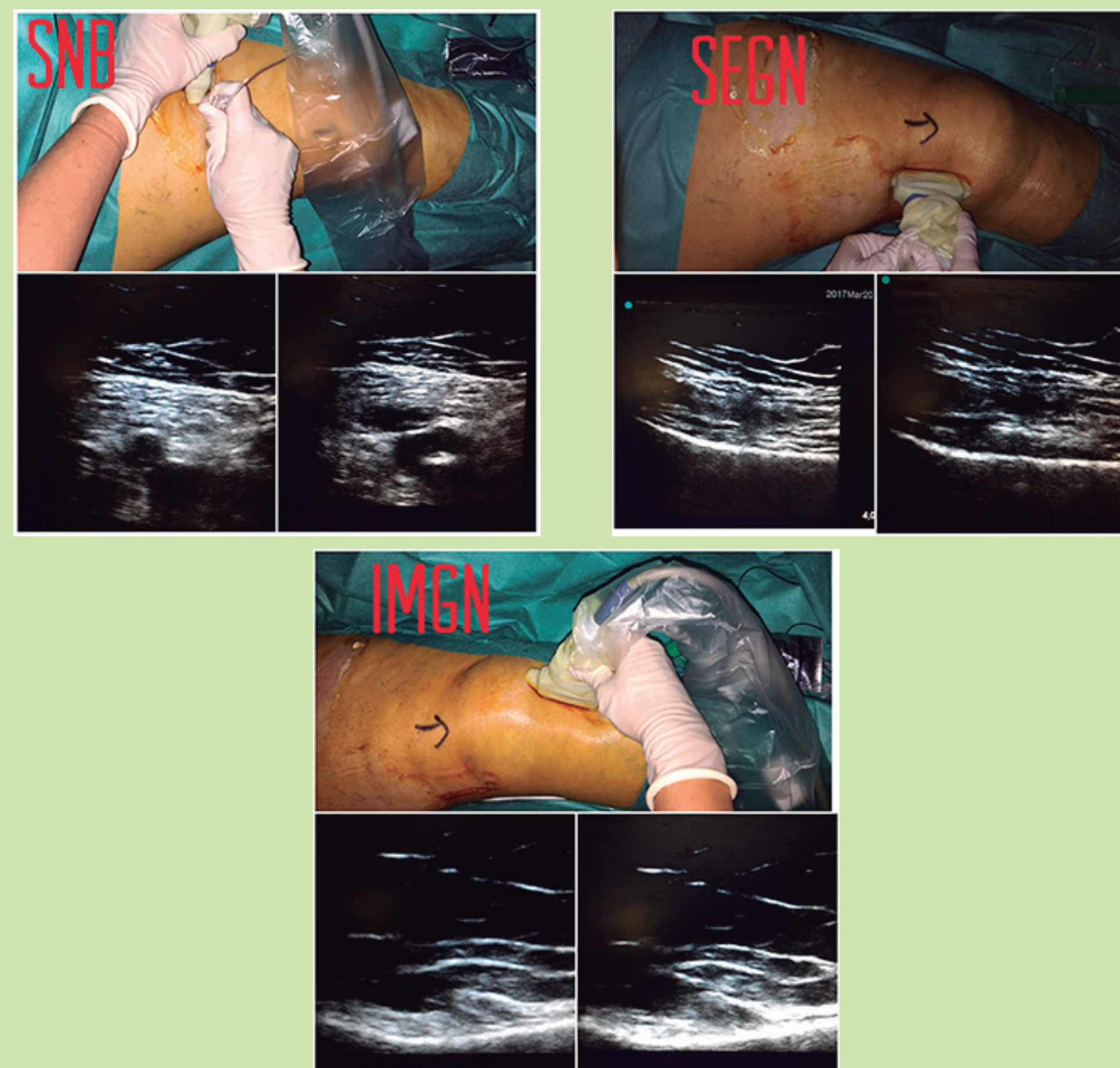
### BACKGROUND AND AIMS

According to the data published by the Spanish Federation of Sanitary Technologies (FENIN), approximately 45,000 total knee arthroplasty are done every year in Spain. Most of these interventions are performed due to advanced osteoarthritis, which can be a very limiting disease. An effective analgesic strategy is needed to help restore the patient's functional status as soon as possible. Therefore, it is necessary to search for new analgesic options that could provide an optimal control of pain and allow early deambulation, rapid rehabilitation and a shorter hospital stay. The aims of our study were to evaluate the efficacy and safety of a Multimodal Rehabilitation (Fast-Track) in total knee arthroplasty (TKA) in our center from January to December 2016.

### MATERIALS AND METHODS

Retrospective observational study (January – December 2016) according to TKA Fast-Track protocol of Sagrat Cor Hospital which includes:

1. Multidisciplinary Preoperative Evaluation.
2. Group health education for Anesthetic-Surgical Procedure and Rehabilitation Program.
3. Elective TKA Surgery: Intradural Anesthesia Hyperbaric Bupivacaine (13mg +/- 10mcg Fentanyl) and Ultrasound guided block of the saphenous nerve (SN) in the adductor canal and Superior External Genicular Nerve (SEGN) and Lower Medial (LMGN) with 100mg Levobupivacaine + 8mg Dexamethasone along with intraarticular infiltration (Ropivacaine 200mg).
4. Postoperative: Visual Analog Scale for Pain (VAS) every 8 hours. 0-2h: Immediate start of Passive Functional Rehabilitation with Kineteck. 0-48h: IV Analgesia: Dexketoprofen + Paracetamol. Rescue with Methadone sc. Withdrawal of drainage and ambulation under load with crutches. Physical therapy with crutches and stairs. Discharge to home.

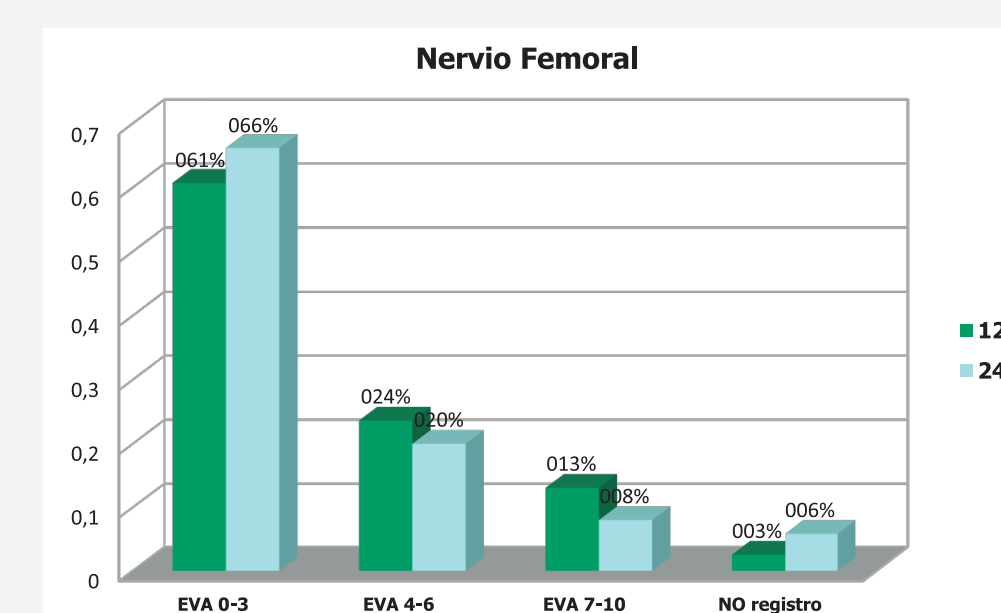
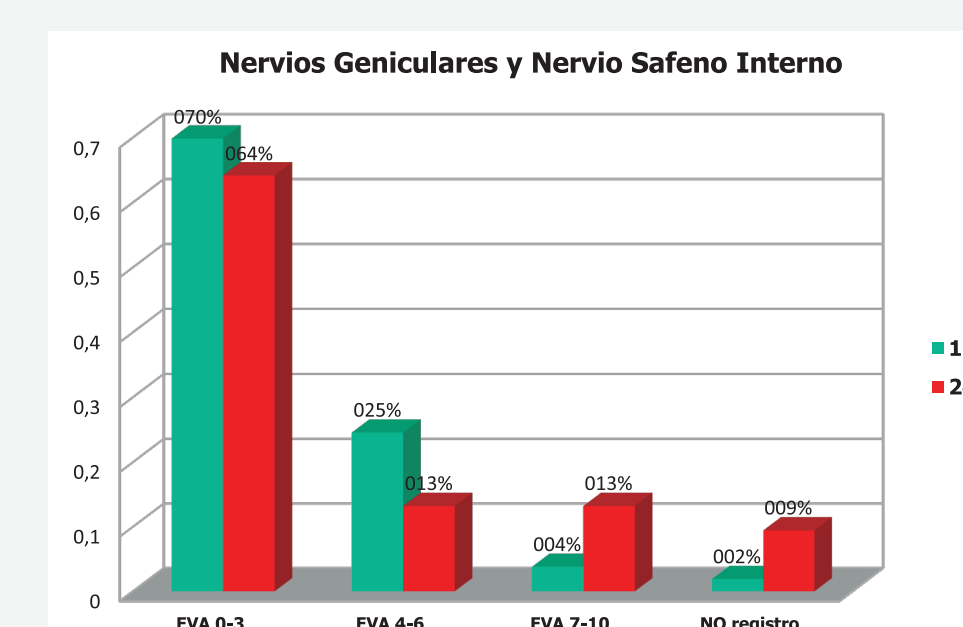


A descriptive analysis was performed through the calculation of means, SD for quantitative variables and percentage for qualitative variables. For the comparison of a quantitative variable for two or more subgroups the Student's t was used. In order to analyze whether the pain measured by the VAS scale decreases over time, the statistical relationship between two paired quantitative variables was used. A value of  $p < 0.05$  was considered statistically significant. We used the Statistical Package for Social Sciences (SPSS) version 15.0

### RESULTS

From the total cohort of 328 patients, 275 were FNB and 53 were SNB + GNB. The mean post-operative pain in the postoperative period in patients with FNB was 3.4 (SD 2.28) and in those with SNB + GNB 2.37 (SD 2.17). This difference was significant ( $p = 0.003$ ). There were also significant differences in the VAS at 48 hours at rest, mean 2.26 (SD 1.4) vs 1.57 (SD 1.01) ( $p = 0.049$ ). At 24 hours there were no significant differences in pain assessment between the two techniques. Regarding to pain related to movement there were no significant difference.

Variable	Intra+BF %	Intra+BG %	Significación p
Sexo			
Hombres	81,8	18,2	0,327
Mujeres	84,6	15,4	
Incidencias (SI)	14,2	11,3	0,381
Rescate (SI)	54,9	41,5	0,051
	media (SD)	media (SD)	p
Edad (años)	73,5 (8,3)	71,0 (6,85)	0,019
EVN post Reposo	3,4 (2,2)	2,3 (2,1)	0,003
EVN post movimiento	4,1 (2,4)	3,8 (2,5)	0,652
EVN 24 h Reposo	2,9 (2,9)	2,9 (2,0)	0,848
EVN 24 h movimiento	3,6 (2,0)	4,0 (2,65)	0,458
EVN 48 h Reposo	2,2 (1,49)	1,6 (1,0)	0,049
EVN 48 h movimiento	3,17 (1,6)	3,56 (1,6)	0,537



### CONCLUSION

The most important finding of our study is that we were able to demonstrate that the combination of ultrasound guide blocks of the SN + SEGN + LMGN as an analgesic technique for TKA is more effective in controlling pain at 12 and 48 hours postoperatively compared to FNB and without affecting the strength of the Femoral quadriceps. These nerve blocks are easy to learn, safe and effective. Thanks to the multidisciplinary approach of the patients, the Multimodal strategy for the treatment of pain offers an optimal postoperative analgesia and a fast functional recovery to patients undergoing TKA.

### BIBLIOGRAPHY

Castells X, Comas M, Guerrero R, Espallargues M, Allepuz A, Sabatés S, Pons M, Coll M. Impacto de la cirugía para el recambio de prótesis de rodilla en el Sistema Nacional de Salud. Agència de Qualitat i Avaluació Sanitàries de Catalunya; 2014.

DuanWang1.,YangYang2., Qi Li1.,Shen-LiTang.,Wei-NanZeng., JinXu., Tian-HangXie1., Fu-Xing Pei., LiuYang., Ling-Li Li1 & Zong-Ke Zhou. Adductor canal block versus femoral nerve block for total knee arthroplasty: a meta-analysis of randomized controlled trials. Scientific reports. 7:40721 (2017).

Qudsi-Sinclair, MD\*; Enrique Borrás-Rubio, MD†; Juan F. Abellan-Guillen, MD, PhD†; Maria Luz Padilla del Rey, MD-FIPP†; Guadalupe Ruiz-Merino, IMIB-FFIS. A Comparison of Genicular Nerve Treatment Using Either Radiofrequency or Analgesic Block with Corticosteroid for Pain after a Total Knee Arthroplasty: A Double-Blind, Randomized Clinical Study. Pain pract. 2016.