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Health Centre

BEST OF MEETING AWARD PRESENTATION



**16th Annual Pain  
Medicine Meeting**

November 16-18, 2017 | Lake Buena Vista, Florida  
Disney's Yacht & Beach Club Resorts

#ASRAfall17

## Functional outcome and postoperative analgesia following total knee arthroplasty: Randomized double-blind comparison between continuous adductor canal block and preoperative radiofrequency of saphenous and genicular nerves

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# INTRODUCTION

- Over one million Total Knee Arthroplasties (TKA) are preformed every year in USA.
- High risk to develop severe acute postoperative and chronic pain, possibly slowing patients' recovery.
- Radiofrequency (RF) could be useful in non-operative knee and hip painful osteoarthritis (OA).
- Prolonged analgesia and improvement of functional recovery in patients receiving preoperative RF have not been tested for TKA.

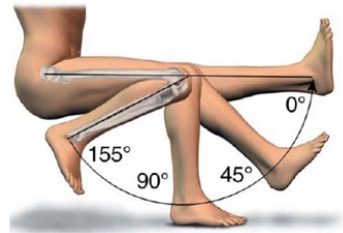
*Inacio MCS, Paxton EW, Graves SE, Namba RS, Nemes S. Projected increase in total knee arthroplasty in the United States - an alternative projection model. Osteoarthritis Cartilage. 2017 Aug 8*

*Carli F, Chora D, Awasthi R, Asenjo JF, Ingelmo P. Preoperative pulse and thermal radiofrequency facilitates prehabilitation and subsequent rehabilitation of a patient scheduled for total knee arthroplasty. Can J Anaesth 2015 Dec;62(12):1355sthi*

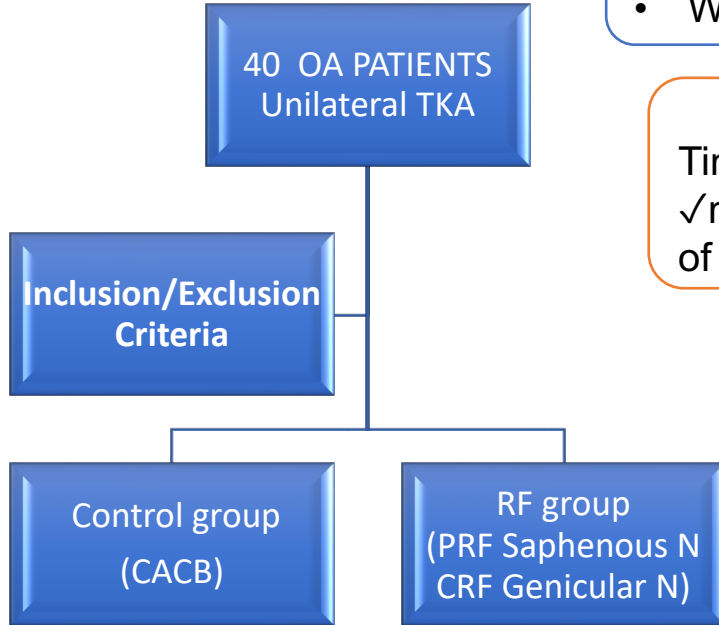
*Choi W-J, Hwang S-J, Song J-G, Leem J-G, Kang Y-U, Park P-H, et al. Radiofrequency treatment relieves chronic knee osteoarthritis pain: a double-blind randomized controlled trial. Pain. 2011 Mar;152(3):481*

# OBJECTIVE

To measure meaningful **functional outcomes (long-term effect)** and **postoperative analgesia** obtained with preoperative Pulsed RF (pRF) of the saphenous nerve and Continuous RF (cRF) of the genicular nerves, when compared to the conventional continuous adductor canal block (CACB)



# STUDY DESIGN

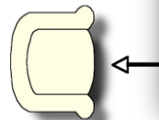


- Prospective
- Approved by
- Written cons

Timed Up and  
✓ measured at  
of intervention

Second  
Pain level  
✓ meas

Chair



## The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Instructions: Please rate the activities in each category according to the following scale of difficulty: 0 = None, 1 = Slight, 2 = Moderate, 3 = Very, 4 = Extremely

Circle one number for each activity

Pain	1. Walking	0	1	2	3	4
	2. Stair Climbing	0	1	2	3	4
	3. Nocturnal	0	1	2	3	4
	4. Rest	0	1	2	3	4
	5. Weight bearing	0	1	2	3	4
Stiffness	1. Morning stiffness	0	1	2	3	4
	2. Stiffness occurring later in the day	0	1	2	3	4
Physical Function	1. Descending stairs	0	1	2	3	4
	2. Ascending stairs	0	1	2	3	4
	3. Rising from sitting	0	1	2	3	4
	4. Standing	0	1	2	3	4
	5. Bending to floor	0	1	2	3	4
	6. Walking on flat surface	0	1	2	3	4
	7. Getting in / out of car	0	1	2	3	4
	8. Going shopping	0	1	2	3	4
	9. Putting on socks	0	1	2	3	4
	10. Lying in bed	0	1	2	3	4
	11. Taking off socks	0	1	2	3	4
	12. Rising from bed	0	1	2	3	4
	13. Getting in/out of bath	0	1	2	3	4
	14. Sitting	0	1	2	3	4
	15. Getting on/off toilet	0	1	2	3	4
	16. Heavy domestic duties	0	1	2	3	4
	17. Light domestic duties	0	1	2	3	4

Total Score: \_\_\_\_\_ / 96 = \_\_\_\_\_ %

Comments / Interpretation (to be completed by therapist only):

Meeting

na Vista, Florida

Weeks

Index



# RESULTS

## *Patient Characteristics and Clinical Data*

	RF Group (n=20)	Control Group (n=20)	P value
<b>Sex, N (%)</b>			
Male	12(60%)	6(30%)	0.38
Female	8(40%)	14(70%)	
<b>Age (years), mean (SD)</b>	67.3 (6.97)	68.1 (7.13)	0.72
<b>BMI (kg/m<sup>2</sup>) (SD)</b>	31.86 (6.08)	30.92 (5.14)	0.60
<b>ASA, N (%)</b>			
1	2 (10%)	0 (0%)	0.22
2	18 (90%)	20 (100%)	
3	0 (0%)	0 (0%)	
<b>Preoperative NRS pain score greater flexion, mean (SD)</b>	5.37 (2.71)	5.7 (2.13)	0.67
<b>Preoperative Degree of flexion, mean (SD)</b>	95.26 (17.2)	86.05 (11.97)	0.05
<b>Hospital stay (days), mean (SD)</b>	2.73 (0.56)	4.15 (2.16)	0.0040

✓ Patients in the RF group were discharged 1.4 days earlier than the control group.

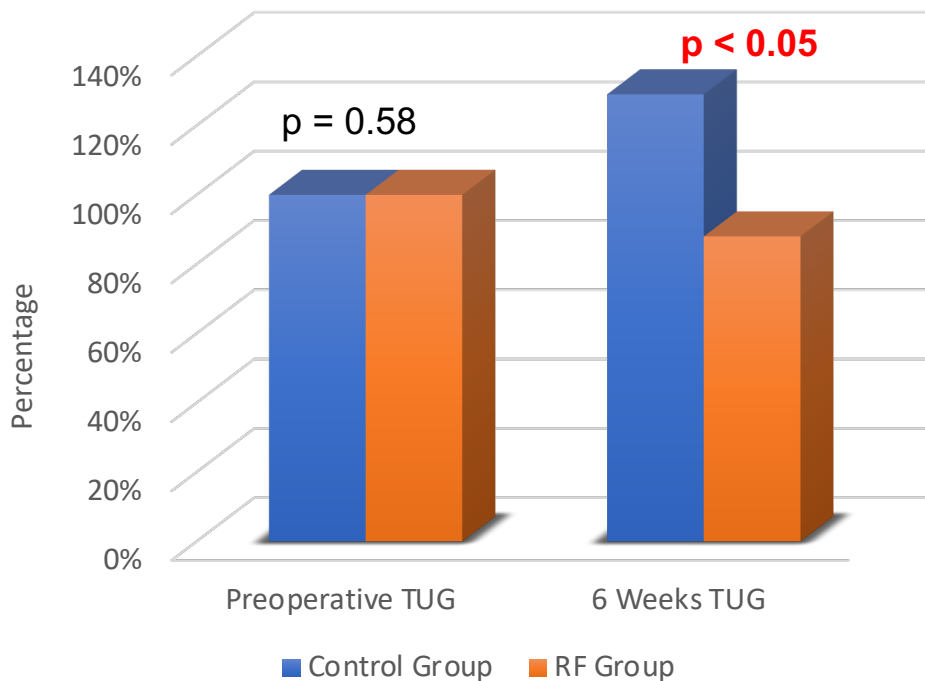
✓ At 6 weeks, the **WOMAC index was significantly better in the RF group** (p<0.01)

✓ At 6 weeks, compared with its preoperative values, the **6MWT was already 20% better in the RF group** vs 12% worse in the control.

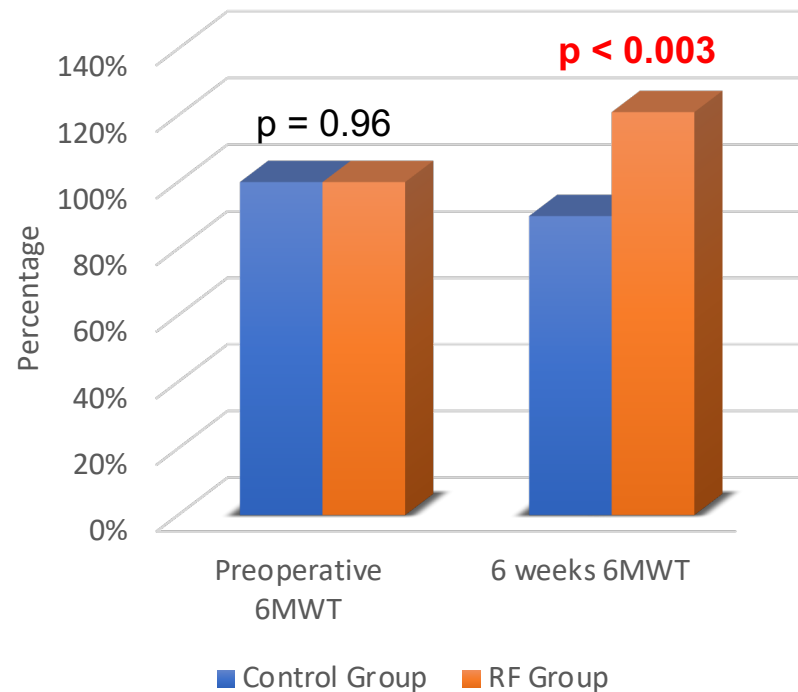
✓ Early analgesic requirements were similar.

# RESULTS

PRIMARY FUNCTIONAL OUTCOME:  
TUG (seconds)



SECONDARY FUNCTIONAL OUTCOME:  
6MWT (meters)



# DISCUSSION / CONCLUSION

- Our results show significant clinical improvements in all functional outcomes (TUG test, 6MWT and WOMAC index) **at 6 weeks in the RF group** after TKA.
- The delayed effect of the pRF could explain the lack of impact on the TUG at 48 hours compared to 6 weeks.
- This trial was based in Franco's et al paradigm for knee innervation and used well validated tools to assess the functional outcomes (TUG test, 6MWT and WOMAC index).
- The results of this first prospective randomized study of RF in TKA require further validation. If confirmed, may contribute greatly to improve the functional recovery of patients undergoing TKA.