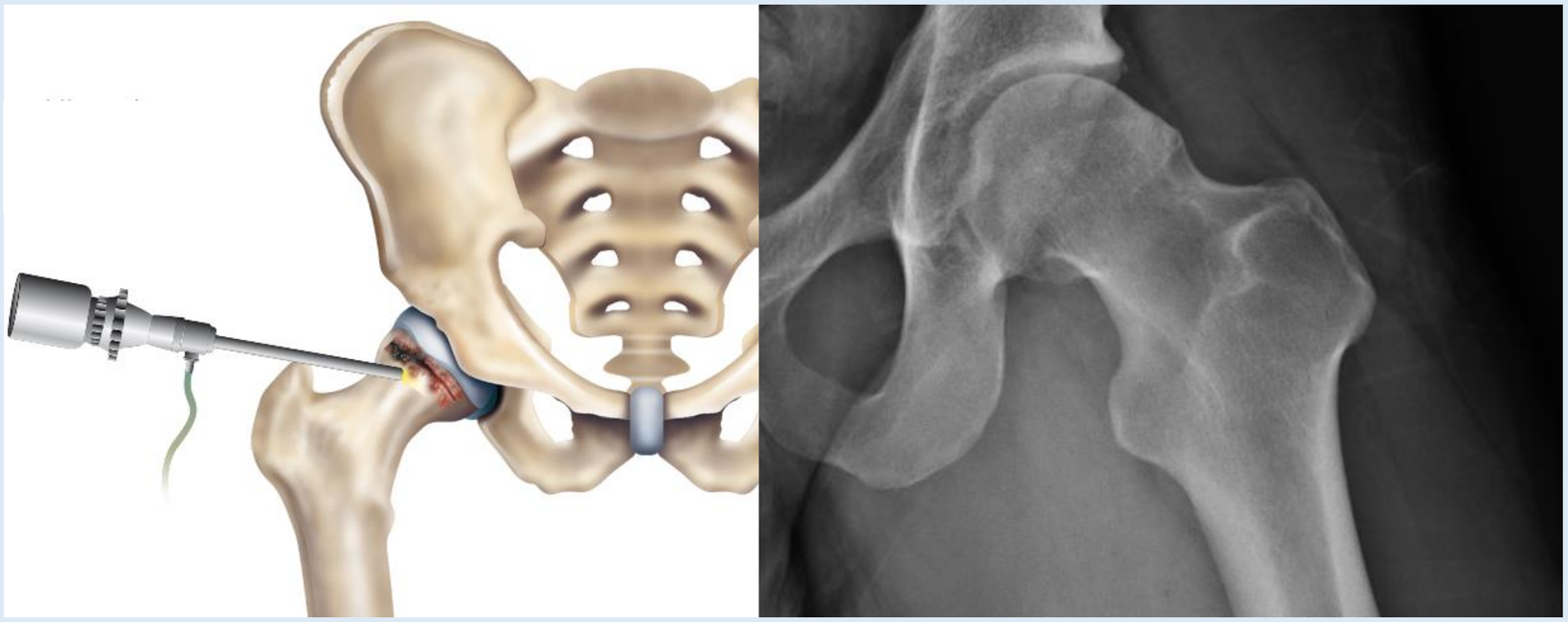
Spinal vs. General Anesthesia for Hip Arthroscopy: Is One Superior?



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Disclosures

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Introduction

- General anesthesia has been the most common choice of anesthesia for hip arthroscopy, but there is no current consensus on the optimal form of anesthesia.

- Spinal anesthesia has been identified in other orthopedic surgeries to have advantages for pain control and decreased adverse events.

Study Aim: Investigate the difference in efficiency and patient outcomes between spinal and general anesthesia in the setting of hip arthroscopy for femoroacetabular impingement.

Methods

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- A retrospective review was performed for all patients undergoing hip arthroscopy for FAI with Dr. Thomas Wuerz from 2021-2023.
- Surgeries were completed at three different ambulatory surgery centers.
- Operative notes, nursing records, and a prospectively maintained registry of patients undergoing hip arthroscopy for FAI with Dr. Wuerz were reviewed.
- 234 patients were included in the review: 192 in the spinal group, 42 in the general group.

Methods

- Spinal anesthesia was performed with a one-time dose of 1.4mL of 0.5% bupivacaine (10.5mg).
- Spinal anesthesia was performed in the operating room.
- General anesthesia was performed with propofol and endotracheal intubation. Muscle relaxation was maintained with rocuronium boluses.

Methods

- Traction time, the number of air arthrograms required to achieve adequate distraction, total operating room time, total surgical time, and total PACU time were compared between the spinal anesthesia and general anesthesia groups.

- Pre-operative radiographic measurements were compared between the two groups, as well as pre- and post-operative PROs.

Statistical Analysis:
Independent sample t-tests were run to identify any significant differences between cohorts. Statistical significance was set at $p = 0.05$.

Results

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Table I: Comparison of Patient Demographics and Pre-Operative Radiographic Measurements

Parateter	*N*	Spinal (n=192)	General (n=42)	P value
Age	*234*	36.8 ± 11.6	37.1 ± 11.1	0.844
Gender	*234*			
Male		68 (35.4%)	12 (28.6%)	0.504
Female		124 (64.6%)	30 (71.4%)	
Laterality	*234*			
Right		102 (53.1%)	24 (57.1%)	0.762
Left		90 (46.9%)	18 (42.9%)	
# of revisions	*234*	23 (12.0%)	2 (4.8%)	0.268
# of anchors for labral repair	*229*			
mean (SD)		3.25 ± 0.57	3.25 ± 0.67	0.991
2		6 (3.1%)	2 (4.8%)	
3		136 (70.8%)	29 (69.0%)	
4		42 (21.9%)	6 (14.3%)	0.281
5		4 (2.1%)	3 (7.1%)	
6		1 (0.5%)	0 (0.0%)	
# of reconstructions	*234*	1 (0.5%)	2 (4.8%)	0.084
Pre op alpha angle °	*234*	57.1 ± 8.8	56.8 ± 8.1	0.846
Preop lateral center edge angle (°)	*234*	30.1 ± 5.3	29.9 ± 6.3	0.848
Pre op tonis grade	*234*			
0		155 (80.7%)	34 (81.0%)	0.895
1		37 (19.3%)	8 (19.0%)	

x ± s represents mean and standard deviation; n (%) represents count and frequency

- There were no statistically significant differences in pre-operative radiographic measurements or demographic data between the spinal and general groups.

Results

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Table II: Comparison of Patient Reported Outcomes

Parameter	Spinal (n=192)	General (n=42)	P value
PROMIS physical function			
baseline	39.9 ± 5.8	41.7 ± 6.5	0.100
3 months	43.9 ± 5.9	45.0 ±5.7	0.241
1 year	50.0 ± 10.2	50.4 ± 10.6	0.801
iHOT-12			
baseline	36.3 ± 19.3	39.4 ± 20.9	0.388
3 months	59.3 ± 23.5	66.85 ± 23.6	0.065
1 year	70.7 ± 26.5	72.4 ± 26.5	0.704
Hip outcome scores - ADL			
baseline	57.5 ± 17.0	62.6 ± 19.8	0.128
3 months	73.6 ± 16.7	75.7 ± 20.3	0.534
1 year	82.1 ± 17.9	82.5 ± 19.5	0.885
Hip outcome scores - sport			
baseline	34.4 ± 22.1	40.2 ± 24.6	0.168
3 months	43.4 ±30.1	51.8 ± 34.4	0.202
1 year	69.2 ± 28.6	67.1 ± 30.5	0.696

PROMIS, Patient-Reported Outcomes Measurement Information System; iHOT, International Hip Outcome Tool; ADL, Activites of Daily Living

- There were no statistically significant differences in pre- or post-operative patient reported outcomes between the spinal and general groups.

Results

- T-tests demonstrated significant differences in total operating time and total PACU time between the spinal and general anesthesia groups.
- Total OR time was significantly less for spinal anesthesia (**140.13 mins**) compared to general anesthesia (**149.22 mins**)
    - **P value = 0.027**
- PACU time was shorter in the spinal cohort (**87.79 mins**) compared to the general cohort (**110.13 mins**)
    - **P value < 0.001**
- Traction time and total surgical time comparable between groups

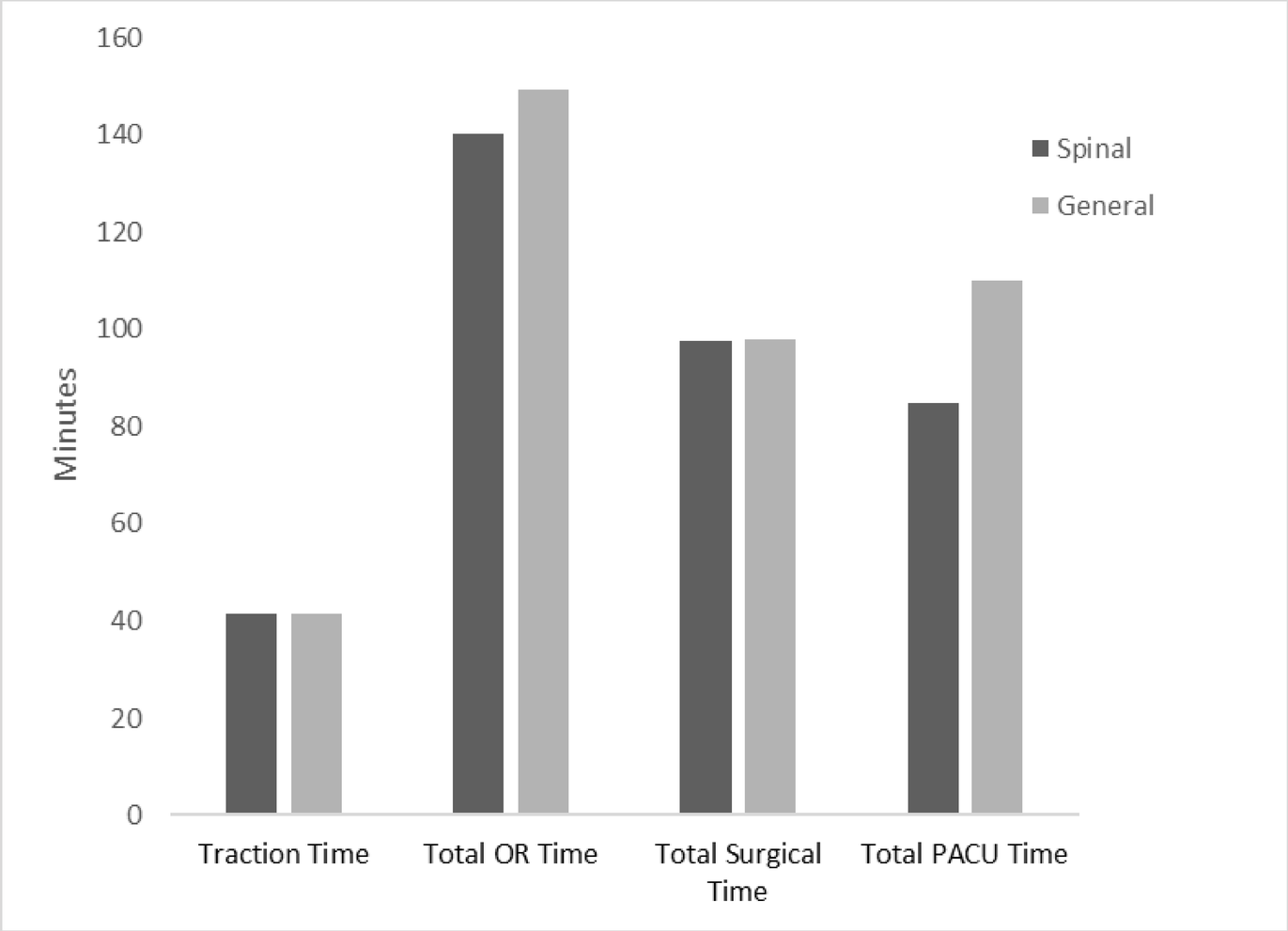

Figure I: Comparison of Operating Room and PACU Time

Conclusions

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- Spinal anesthesia is more efficient than general anesthesia for hip arthroscopy in the setting of FAI
    - Less time spent in the operating room and in the PACU
- The increased efficiency of spinal anesthesia also has no detriment on patient outcomes at 3 months and 1 year

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