RAPID Study: Low dose Spinal versus Hemi-Spinal anaesthesia in fast-track surgery in patients receiving a primary Total Hip Arthroplasty. Preliminary results of a prospective randomised controlled study.

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Background

Spinal (S) and Hemi-Spinal anaesthesia (HS) are two common methods in total hip arthroplasty (THA). In the Martini Hospital we apply fast-track surgery aiming to limit patients stay in hospital.

Aim

The aim of this RCT is to evaluate whether low dose S or HS anaesthesia would provide better perioperative anaesthesia.

Methods

Study design: Randomised Controlled Trial

Measures:

- Demographic characteristics
- Conversion
- opioid intervention perioperative
- Length of stay (LOS) PACU
- postoperative pain (VNRS)
- LOS in hospital (LOS)

Statistic analysis: To compare treatment outcomes in both groups we applied t-tests for continuous measures and Chi2 tests for categorical measures and logistic regression. P-values <.05 were considered statistically significant.

Treatment: All patients received low dose S (7.5 mg: 0,5% bupivacaine plain) or HS (7.5 mg: 0,5% bupivacaine hyperbaric), sedation with propofol and multimodal opioid-sparing regimen.

Results

No differences in demographics were found between groups. A total of 175 patients were analyzed (S=86 and HS=89). See table 1 for demographics.

Table 1: Demographics	
Age (mean ± SD)	76.3% ± 10.4 (range 37 – 94)
Sex (% female)	34.4%
MBI (mean ± SD)	27.9 ± 4.7 (range 18.8 – 42.6)
ASA (I / II / III)	27.4% / 62.3% / 10.3%
Anterior approach vs Posterolateral Approach	56% vs 44%

Table 2 shows several significant differences between the two forms of anaesthesia.

Table 2: Outcomes of anaesthesia (S vs HS)

	Spinal (N=86)	Hemi-Spinal (N=89)	P-value
Conversion to general anaesthesia	5.8%	16.9%	.027
Opioids received perioperatively	9.3%	14.6%	
Time (min) between S or HS and start operation	15 ± 5	47 ± 16	< .001
LOS PACU (min)	79 ± 46	40 ± 23	< .001
Postoperative pain in first 3 days (VNRS)	2.6 – 2.1	2.6 – 2.1	ns
LOS Hospital (hours)	45 ± 25	49 ± 47	ns

Figure 1 shows the various steps in the process of surgery. The delay in starting surgery in de HS group was significantly (p <.001) related to the need for additional anaesthesia (conversion or opioids).

Figure 1: process of surgery

Discussion and Conclusion

Low dose S and low dose HS in combination with sedation and a multimodal opioid-sparing regimen provide adequate anaesthesia in primary THA.

This study showed significant differences in conversion and opioid intervention rates between S and HS, which can be attributed to a delay, i.e. the time between placing S or HS and starting surgery. Optimizing logistics in HS anaesthesia might solve this disadvantage.