

# The feasibility of awake ambulatory knee surgery under regional anesthesia with and without the use of audiovisual devices.

Lukas Pichler MD<sup>1,2</sup>, Katherine L. Lee BS<sup>1</sup>, Danya DeMeo BS<sup>1</sup>, Kara Fields MS<sup>1</sup>, Eva E. Mörwald MD<sup>2</sup>, Crispiana Cozowicz MD<sup>1,2</sup>, Stavros G. Memtsoudis MD PhD FCCP<sup>1</sup>

<sup>1</sup>Hospital for Special Surgery, Department of Anesthesiology, Critical Care and Pain Management, New York, NY

<sup>2</sup>Paracelsus Medical University, Department of Anesthesiology, Perioperative Medicine and Intensive Care Medicine, Salzburg, Austria



2018 World Congress on  
Regional Anesthesia & Pain Medicine

April 19-21, 2018 | New York Marriott Marquis, New York City, USA  
www.asra.com/world-congress | #ASRAWorld18



## INTRODUCTION

Although regional anesthetic techniques can produce dense surgical anesthesia, patients often require sedation during surgical procedures. Because the use of sedatives is associated with various side effects, reducing or eliminating sedation may lead to improved perioperative care. Listening to music and using audiovisual devices (AVD) may not only reduce anxiety perioperatively but can reduce sedation requirements during surgery under neuraxial anesthesia. Therefore, we assessed the feasibility of performing ambulatory knee arthroscopy under spinal anesthesia with minimal sedation in patients being awake during surgery with or without the use of audiovisual devices.

## METHODS

After IRB approval, 26 patients undergoing primary, ambulatory, arthroscopic meniscectomy under spinal anesthesia were randomized to receive minimal sedation with or without the use of AVD. Patients received 2 mg of midazolam before placement of the spinal anesthetic and had the possibility to request additional sedation at any time.

Patients in the AVD group were fitted with the devices (HappyMed Video Glasses, Vienna, Austria and Cinema ProMed by Zeiss, Oberkochen, Germany) and chose content from a preexisting video library before being transferred to the operation room. Pain scores and State-Trait Anxiety Inventory scores were recorded at baseline and after surgery. The Heidelberg Peri-anaesthetic Questionnaire and the Client Satisfaction Questionnaire (CSQ-8) provided feedback on patient satisfaction. A questionnaire was created for anesthesiologists and surgeons to provide feedback on their experience.

## RESULTS

26 patients (AVD group: n=13; control group: n=13) were analyzed. No differences in postoperative pain scores or opioid and other analgesics consumption were observed, and no complications occurred. Five patients in the control and three patients in the AVD group asked for additional sedative during the case. Two additional patients received sedative as per the anesthesiologist's assessment in the AVD group. This difference was not statistically significant. No difference was seen in either state or trait anxiety scores between groups either before or after surgery. Patients with and without AVD reported equally high satisfaction postoperatively. Providers reported a positive experience with the use of AVD.

## DISCUSSION

We demonstrated that performing ambulatory knee surgery under regional anesthesia in awake patients is feasible with and without the use of audiovisual devices. Both, patients in the intervention group and physicians, showed high satisfaction with the use of audiovisual devices in the perioperative setting.

Patients in either group rarely asked for additional sedation. Future studies should use greater sample sizes to find out if the use of AVD can reduce sedatives and have an impact on outcomes.

## PATIENT OUTCOMES

	AVD		No AVD		Difference in means or odds ratio (95% CI)	P-value
	n		n			
<b>Patient request for additional sedatives, n (%)</b>	13	3 (23.1)	13	5 (38.5)	0.60 (0.18, 2.01)	0.673
<b>Administration of additional sedatives, n (%)</b>	13	5 (38.5)	13	5 (38.5)	1.00 (0.38, 2.64)	0.999
<b>Maximum intraoperative change from baseline SBP (mmHg), mean ± SD</b>	13	7 ± 14	13	7 ± 10	0 (-10, 10)	0.987
<b>Maximum intraoperative change from baseline DBP (mmHg), mean ± SD</b>	13	2 ± 7	13	3 ± 8	-1 (-7, 5)	0.727
<b>Maximum intraoperative change from baseline HR (beats/minute), mean ± SD</b>	13	17 ± 11	13	17 ± 27	0 (-17, 17)	0.970
<b>Opioid use (mg OME), mean ± SD</b>						
<b>Intraoperative</b>	13	3.5 ± 12.5	13	2.3 ± 8.3	1.2 (-6.7, 9.0)	0.773
<b>Inpatient postoperative</b>	13	10.8 ± 5	13	9.8 ± 6	1.0 (-3.1, 5.1)	0.645



**Audiovisual device for patient distraction**