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Influence of central neuraxial blockade on anesthetic pharmacology and brain function

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Addenda

Curriculum vitae, List of Publications, Abbreviations

Curriculum vitae

Elske Sitsen is geboren op 26 oktober 1970 in Harderwijk, Nederland. Zij volgde het Atheneum op College Groevenbeek in Ermelo en zij behaalde haar eindexamen in 1989. In 1990 startte zij met haar studie geneeskunde en studeerde in 1998 af aan de Rijksuniversiteit van Utrecht. Na een aantal maanden als AGNIO gewerkt te hebben in het Lucas-Andreas ziekenhuis startte zij in 1999 als arts-assistent op de afdeling Anesthesiologie in het LUMC waar zij haar opleiding tot Anesthesioloog in 2006 voltooide. In dat zelfde jaar werd zij aangenomen als staf lid op de afdeling Anesthesiologie in het LUMC. Zij werkt sindsdien als algemeen anesthesioloog met expertise in de regionale anesthesie en zij maakt deel uit van het levertransplantatie team. Haar onderzoeksproject startte in de eindfase van de opleiding en werd in 2010 verder uitgewerkt onder begeleiding van Albert Dahan wat heeft geleid tot dit proefschrift. Sinds 2017 zit zij als medisch manager in het managementteam van het OK-centrum, en sinds 2018 is zij verantwoordelijk voor de pre-operatieve polikliniek. Buiten deze taken neemt zij deel aan diverse commissies en stuurgroepen binnen het LUMC, en zit zij sinds 2022 in het bestuur van het stafconvent. Zij is getrouwd met Paul Hedeman Joosten, vaatchirurg, en zij hebben samen 4 kinderen, Bente, Boas, Noor en Jonathan, geboren tussen 2001 en 2006.

List of Publications

Sitsen, E.; Bax, N. M.; van der Zee, D. C., Is laparoscopic pyloromyotomy superior to open surgery? *Surg Endosc* 1998, 12 (6), 813-5.

Sitsen, M. E.; Ho, G. H.; Blankensteijn, J. D., Deformation of self-expanding stent-grafts complicating endovascular peripheral aneurysm repair. *J Endovasc Surg* 1999, 6 (3), 288-92.

Sitsen, E.; van Poorten, F.; van Alphen, W.; Rose, L.; Dahan, A.; Stienstra, R., Postoperative epidural analgesia after total knee arthroplasty with sufentanil 1 microg/ml combined with ropivacaine 0.2%, ropivacaine 0.125%, or levobupivacaine 0.125%: a randomized, double-blind comparison. *Reg Anesth Pain Med* 2007, 32 (6), 475-80.

Sitsen, E.; van Poorten, F.; Jansen, G.; Kuijpers, R.; Dahan, A.; Stienstra, R., A comparison of the efficacy of levobupivacaine 0.125%, ropivacaine 0.125% and ropivacaine 0.2%, all combined with sufentanil 0.5 microg/mL, in patient-controlled epidural analgesia after hysterectomy under combined epidural and general anesthesia. *Acta Anaesthesiol Belg* 2012, 63 (4), 169-75.

Niesters, M.; Sitsen, E.; Oudejans, L.; Vuyk, J.; Aarts, L. P.; Rombouts, S. A.; de Rover, M.; Khalili-Mahani, N.; Dahan, A., Effect of deafferentation from spinal anesthesia on pain sensitivity and resting-state functional brain connectivity in healthy male volunteers. *Brain Connect* 2014, 4 (6), 404-16.

Sitsen, E.; Olofsen, E.; Lesman, A.; Dahan, A.; Vuyk, J., Epidural Blockade Affects the Pharmacokinetics of Propofol in Surgical Patients. *Anesth Analg* 2016, 122 (5), 1341-9.

Okkerse, P.; Hay, J. L.; Sitsen, E.; Dahan, A.; Klaassen, E.; Houghton, W.; Groeneveld, G. J., Pharmacokinetics and pharmacodynamics of intrathecally administered Xen2174, a synthetic conopeptide with norepinephrine reuptake inhibitor and analgesic properties. *Br J Clin Pharmacol* 2017, 83 (4), 751-763.

Sitsen, E.; van Velzen, M.; de Rover, M.; Dahan, A.; Niesters, M., Hyperalgesia and Reduced Offset Analgesia During Spinal Anesthesia. *J Pain Res* 2020, 13, 2143-2149.

Jaap Vuyk, E. S., Marije Reekers, Intravenous Anesthetics. In *Miller's Anesthesia*, Michael A. Gropper, MD,, Lars I. Eriksson, MD, Lee A. Fleisher, MD, Jeanine P. Wiener-Kronish, MD, Neal H Cohen, MD and Kate Leslie, MD. 2019, Chapter 23.

Meijer, T. S.; Geus-Oei, L. F.; Martini, C. H.; Tijl, F. G. J.; Sitsen, M. E.; Erkel, A. R. V.; Meer, R. W. V.; Kapiteijn, E.; Vahrmeijer, A. L.; Burgmans, M. C., Embolization of variant hepatic arteries in patients undergoing percutaneous hepatic perfusion for unresectable liver metastases from ocular melanoma. *Diagn Interv Radiol* 2019, 25 (6), 451-458.

Sitsen, E.; Olofsen, E.; Dahan, A.; Vuyk, J., Effect of lumbar epidural blockade and propofol on mean arterial pressure, cardiac output and bispectral index: A randomised controlled and pharmacodynamic modelling study. *Eur J Anaesthesiol* 2021, 38 (Suppl 2), S121-S129.

Elske Sitsen MD, Najmeh Khalili-Mahani PhD, Mischa de Rover PhD, Albert Dahan MD PhD, Marieke Niesters MD PhD. Effect of spinal anesthesia-induced deafferentation on pain processing in healthy male volunteers: a task-related fMRI study. Accepted for publication November 2022 *Frontiers in Pain Research*.

Abbreviations

CNS	Central Nervous System
CNB	Central Neuraxial Blockade
fMRI	functional Magnetic Resonance Imaging
CV	cardiovascular
NONMEM	non-linear mixed-effects modeling software
PCEA	Patient Controlled Epidural Anesthesia
MLAC	Minimal Local Anesthetic Concentration
MLSB	Maximum Level of Sensory Block
MBS	Motor Block Scores
NRS	Numerical Rating Scale
TFD	Time to First Demand
SD	Standard Deviation
ASA	American Society of Anesthesiologists Physical Status
PONV	Postoperative Nausea and Vomiting
MDPE	Median Performance Error
MDAPE	Median Absolute Performance Error
NBS	Number of Blocked Segments
TCI	Target Controlled Infusion
BMI	Body Mass Index
BIC	Bayesian Information Criterion
MVOF	Minimum Value of Objective Function
BLN	Baseline effect
E_{MAX}	Maximum Predicted Effect
C_{50}	Concentration of a drug that gives 50% of maximal effect
C_E	Effect-site Concentration
$t_{1/2keo}$	blood-effect site equilibration half-life
γ	parameter defining the steepness of the E_{max} curve
α	interaction parameter characterizing the influence of epidural blocked segments
SEE	standard error of the estimate
ω^2	between-subject variability
ROPI	Ropivacaine Dose
eVAS	electronic Visual Analogue Scale
PNOI	Predefined Network Of Interest
AUC	Area Under the Curve
SCI	Spinal Cord Injury
MRI	Magnetic Resonance Imaging
RS-fMRI	Resting-State functional Magnetic Resonance Imaging
fMRI	functional Magnetic Resonance Imaging

TR	Repetition Time
TE	Echo Time
FSL	FMRIB's Software Library
FEAT	FMRI Expert Analysis Tool
MCFLIRT	Motion Correction by FMRIB's Linear Image Registration Tool
BET	Brain Extraction Tool
FWHM	Full Width at Half Maximum
FILM	FMRIB's Improved Linear Model
T2W	T2 weighted
T1W	T1 weighted
HRF	Hemodynamic Response Function
MNI152	Montreal Neurosciences Institute; MNI 152 is the averaging of 152 3DT1 coming from 152 different peoples
GEE model	generalized estimating equations model
GLM	General Linear Model
BOLD	Blood Oxygenation Level Dependent
COPE	Contrast Of Parameter Estimate
IPL	Inferior Parietal Lobule
MCC	midcingulate cortex
ACC	anterior cingulate cortex
SII	Secondary Somatosensory cortex
DMN	Default Mode Network
MPFC	Medial Prefrontal Cortex
S1	Primary Somatosensory cortex
M1	primary Motor cortex

