

Evaluating the effects of general anesthesia on sleep in children undergoing elective surgery: an observational case–control study

Sarah Selvadurai, Jason T Maynes, Conor McDonnell, Sharon L Cushing, Evan J Propst, Armando Lorenzo, Andrew Lim, Lisa J Meltzer, Zihang Lu, Richard L Horner ... [Show more](#)

Sleep, Volume 41, Issue 8, August 2018, zsy094, <https://doi.org/10.1093/sleep/zsy094>

Published: 07 May 2018 **Article history** ▼

Views ▼ Cite Permissions Share ▼

Abstract

Study Objectives

Previous research has suggested that general anesthetics can disturb postoperative sleep patterns by affecting the sleep–wake cycle. The objective was to identify the effects of general anesthetics on sleep quality and related behavioral changes in children.

Methods

This was a prospective, observational case–control study with children, aged 18 months to 8 years, undergoing general anesthesia for elective surgery. Participants wore an actigraph for 7 days on three occasions: prior to surgery, the immediate postoperative period, and 3 months after surgery. Data regarding behavior patterns were collected using behavioral assessments at baseline, the first postoperative week, and 3 months following surgery.

Results

Thirty-one participants (mean age 4.8 ± 2.0 years, 81% male) underwent urologic or otolaryngologic surgery. The median (interquartile range) anesthetic duration was 132.0 (80.0–184.0) min. No significant differences were found in sleep efficiency, total sleep time, wake time after sleep onset, or sleep onset latency between baseline, 7 day postoperative period, and the 3 month follow-up. No significant differences were found in sleep-related behavioral metrics including internalizing and externalizing behaviors, and executive functioning. Data were compared with a control group of 18 participants (mean age 5.3 ± 1.8 years, 61% male). No significant differences were found in sleep patterns and related behavioral metrics between both groups.

Conclusions

In this study, general anesthesia did not result in disturbed sleep or associated negative behavioral changes in otherwise healthy children undergoing elective surgeries of low complexity. Physicians can advise parents that a child's surgery and associated general anesthetic exposure may not result in significant changes in postoperative sleep patterns.

[general anesthesia](#), [sleep disturbances](#), [actigraphy](#), [pediatrics](#)

Topic:

[anesthesia, general](#)

[anesthetics](#)

[child](#)

[follow-up](#)

[parent](#)

[sleep disorders](#)

[surgical procedures, elective](#)

[surgical procedures, operative](#)

[sleep](#)

[actigraphy](#)

Issue Section: [Sleep, Health and Disease](#)

You do not currently have access to this article.

Sign in

Don't already have an Oxford Academic account? [Register](#)

Oxford Academic account

Email address / Username [?](#)

Password

[Sign In](#)

[Forgot password?](#)

[Don't have an account?](#)

Sleep Research Society members



[Sign in via society site](#)

American Academy of Sleep Medicine members



[Sign in via society site](#)

Sign in via your Institution

[Sign in](#)

Purchase

[Subscription prices and ordering](#)

Short-term Access

To purchase short term access, please sign in to your Oxford Academic account above.

Don't already have an Oxford Academic account? [Register](#)

Evaluating the effects of general anesthesia on sleep in children undergoing elective surgery: an observational case-control study - 24 Hours access

EUR €36.00

GBP £28.00

USD \$45.00

Rental



This article is also available for rental through DeepDyve.



[View Metrics](#)

Email alerts

[New issue alert](#)

[Advance article alerts](#)

[Article activity alert](#)

[Subject alert](#)

[Receive exclusive offers and](#)

More on this topic

Hot flashes and awakenings among midlife women

Racial/Ethnic Differences in Sleep Disturbances: The Multi-Ethnic Study of Atherosclerosis (MESA)

Sleep Behaviors and Sleep Quality in Children with Autism Spectrum Disorders

The Use of Actigraphy to Study Sleep Disorders in Preschoolers: Some Concerns about Detection of Nighttime Awakenings

Related articles in

Web of Science

Google Scholar

Related articles in PubMed

Evaluation of Clinical Outcome and Risk Factors for Recurrence after Pelvic Reconstruction of Pelvic Organ Prolapse with Implanted Mesh or Biological Grafts: A Single-Blind Randomized Trial.

Symptomatic Uncomplicated Diverticular Disease and Incidence of Unexpected Abscess during Sigmoidectomy: A Multicenter Prospective Observational Study.

Temporal Trend of Non-Invasive Method Capacity for Early Detection of Metabolic Syndrome in Children and Adolescents: A Bayesian Multilevel Analysis of Pseudo-Panel Data.

Citing articles via

Web of Science (1)

Google Scholar

CrossRef

Latest | **Most Read** | **Most Cited**

Characterization of the sleep disorder of anti-IgLON5 disease

Actigraphic detection of periodic limb

movements: development and validation of a potential device-independent algorithm. A proof of concept study

Simultaneous tonic and phasic REM sleep without atonia best predicts early phenoconversion to neurodegenerative disease in idiopathic REM sleep behavior disorder

Residual symptoms after natural remission of insomnia: associations with relapse over 4 years

Sleep duration and fragmentation in relation to leukocyte DNA methylation in adolescents

Looking for your next opportunity?

Chair of Pain Research
Boston, Massachusetts

PEDIATRIC EMERGENCY PHYSICIAN
Saskatoon Shines, Saskatchewan

Endowed Chair of Occupational
Health/Medicine
Saint John, New Brunswick

CHIEF OF THE DIVISION OF ALLERGY,
IMMUNOLOGY AND INFECTIOUS
DISEASE
New Brunswick, New Jersey

[View all jobs](#)

OXFORD
UNIVERSITY PRESS

[About SLEEP](#)

[Editorial Board](#)

[Author Guidelines](#)

[Facebook](#)

[Twitter](#)

[Contact Us](#)

[Purchase](#)

[Recommend to your Library](#)

[Advertising and Corporate Services](#)

[Journals Career Network](#)

Online ISSN 1550-9109

Print ISSN 0161-8105

Copyright © 2019 Sleep Research Society

[About Us](#)

[Contact Us](#)

[Careers](#)

Connect

[Join Our Mailing List](#)

[OUPblog](#)

[Help](#)

[Access & Purchase](#)

[Rights & Permissions](#)

[Open Access](#)

[Twitter](#)

[Facebook](#)

[YouTube](#)

[Tumblr](#)

Resources

[Authors](#)

[Librarians](#)

[Societies](#)

[Sponsors & Advertisers](#)

[Press & Media](#)

[Agents](#)

Explore

[Shop OUP Academic](#)

[Oxford Dictionaries](#)

[Oxford Index](#)

[Epigeum](#)

[OUP Worldwide](#)

[University of Oxford](#)

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide

Copyright © 2019 Oxford University Press

[Accessibility](#)

[Get Adobe Reader](#)

[Cookie Policy](#)

[Privacy Policy](#)

[Legal Notice](#)

[Site Map](#)