Title

Re: Cole T, Veeravagu A, Zhang M, et al. Intraoperative neuromonitoring in single-level spinal procedures: a retrospective propensity score-matched analysis in a national longitudinal database. Spine (Phila Pa 1976) 2014;39:1950-9

Journal

SPINE, 40(9)

ISSN

0362-2436

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Publication Date

2015

DOI

10.1097/BRS.0000000000000859

Peer reviewed

TO THE EDITOR:

Re: Cole T, Veeravagu A, Zhang M, et al. Intraoperative neuromonitoring in single-level spinal procedures: a retrospective propensity score-matched analysis in a national longitudinal database. Spine (Phila Pa 1976) 2014;39:1950–9.

We were excited to read the article by Cole *et al*,[1] who used a multiyear commercial payer data set to evaluate effectiveness of intraoperative neurophysiological monitoring (IONM) in single-level spinal surgical procedures. Such analyses could identify longitudinal changes to neurological status and differential effects of baseline IONM modalities with on-site oversight by neurophysiologists, with remote oversight, and surgeon-directed automated electromyography. Unfortunately, Cole *et al* attempted only to show that IONM has no benefit in perceived minimal risk surgical procedures using flawed methods.

Propensity score matching did not capture important factors in IONM selection, such as prior hospital and surgeon use (demonstrating IONM availability), and outcomes, save in-hospital "neurological complications," were outside any purported effects of IONM (*i.e.*, wound dehiscence). Matching, even at 1:5, reduced study power, where the largest available sample size is needed to show variance in low probability events. Differences in total allowed hospital payments, unadjusted for geography or standardized to a fixed dollar-year, are too crude to gauge true IONM costs, failing to account for fixed and variable costs for equipment and specialized labor.

Permanent neurological deficits in spinal surgical procedures may be uncommon, but lifetime consequences of disability and lost quality of life are so enormous that more thoughtful evaluation of IONM is warranted.[2]

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1. Cole T, Veeravagu A, Zhang M, et al. Intraoperative neuromonitoring in single-level spinal procedures: a retrospective propensity score-matched analysis in a national longitudinal database. *Spine (Phila Pa 1976)* 2014;39:1950–9.
2. Ney JP, van der Goes DN. Comparative effectiveness analyses of intraoperative neurophysiological monitoring in spinal surgery. *J Clin Neurophysiol* 2014;31:112–7.

The manuscript submitted does not contain information about medical device(s)/drug(s).

No funds were received in support of this work.

Relevant financial activities outside the submitted work: consultancy, expert testimony, employment, royalties.

DOI: 10.1097/BRS.0000000000000859