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In Reply:

We thank Dr. Ilfeld for his very thoughtful and important commentary. His letter not only inserts relevant clinical detail and consideration into the discussion, but also rightfully highlights once more the limitations of information gained from the analyses of large administrative databases.

Despite the advantage associated with the ability to study low incidence outcomes in a real-world setting, the lack of information on causation and paucity of clinical detail cannot be overemphasized. This is a particular salient point now during a time when the number of studies utilizing administrative data sources, while arguably important and valuable, is surging in our specialty journals. Dr. Ilfeld should be commended for his constructive feedback on how to supplement our knowledge gained from big data analyses through more detailed investigations in clinical settings and *vice versa*. At a time when large database investigations are searching for their legitimate place within anesthesiology research, accepting limitations while acknowledging strengths is not only necessary but also a major determinant of our willingness as a community to utilize this important resource of information.

With respect to the data presented in our recent study,[1] we support the conclusion that, while we were not able to identify an association between peripheral nerve block (PNB) and in-patient fall risk in total knee arthroplasty patients, this does not mean that there is no potential mechanism linking the two. However, what our data do suggest is the notion that, in real-world practice, outcomes are influenced by many factors that may sometimes be corrective but are often unmeasured in randomized clinical trials.

In real-world clinical practice, PNB are not performed in isolation and without regard for patient safety, including fall-risk reduction.[2–4] It is a limitation of studies using administrative databases that important information, such as practice management strategies, is often lacking. The lack of association between PNB and in-patients falls in our study may very well relate to systems issues and perhaps selection bias: those hospitals that have had previous problems with falls or lack training in the safe use of PNB may be less likely to use PNB for arthroplasty patients; and those hospitals that use PNBs regularly for arthroplasty may have systems in place to make them work while keeping patients safe, including multidisciplinary fall prevention programs. For every hospital that provides care for arthroplasty patients, all sources of risk should be acknowledged and minimized. The "right" analgesic protocol (*e.g.*, PNB *vs.* no PNB, single-injection *vs.* continuous catheter) will vary by practice but should openly address the risk of inpatient falls that is almost certainly affected by any motor weakness and work toward decreasing the incidence of all complications.

In conclusion, we wholeheartedly agree with Dr. Ilfeld's comments and echo his call for more research in this area of medicine, including targeted clinical and mechanistic studies. As we have previously stated on a number of occasions, database studies cannot provide the ultimate answer on any topic but can help gauge the extent of a problem, formulate testable hypotheses, and perhaps guide future research efforts into directions where it is most needed.

Competing Interests

The authors declare no competing interests.

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