

January 11, 2019

Cloud-Based Platform to Assess Outcomes and Stratify Risk

Kenneth Hunt

Chair, OFAR Managerial Board

University of Colorado, Denver School of Medicine

We read with great interest this article by Barg, et al. and the Commentary and Perspective by Everhart.[1] These articles highlight two important and prevalent challenges in many areas of foot and ankle surgery—the rapid advance and variability of surgical techniques, and the suboptimal current environment for reporting outcomes.

Surgical treatment of hallux valgus is a good example of these challenges due to the prevalence and variability of this elective surgery. But the same problem applies to other current treatments of foot and ankle injuries and conditions, including lateral ankle ligament repair, Achilles tendon repair, hammertoe correction, and hallux rigidus, to name a few. The issue is compounded by rapid advances in techniques and implants for which there often is not a gold standard for outcomes comparison. Moreover, the vast majority of existing literature consists of single-center series without quality comparison. This makes it difficult for readers to identify and stratify the actual outcomes for surgical procedures to inform surgical decision-making, and to select the most effective procedures for their patients.

To address the issue of limited breadth and quality of outcomes reporting for foot and ankle conditions, the AOFAS in 2017 initiated the Orthopaedic Foot and Ankle Research (OFAR) network, a nationwide collaborative of orthopaedic foot and ankle surgeons who enroll operative patients into a cloud-based secure platform.[2] Unlike MOON and SPORT, OFAR allows all foot-and-ankle surgical procedures to be enrolled by a site, rather than just one isolated procedure. The platform is a series of registries that can readily and efficiently be modified for the purposes of collecting high-quality procedural and outcomes data from multiple centers. Because the OFAR platform, Data Use Agreements, and Business Associate Agreements exist at all participating sites, building and disseminating a new or updated registry for bunion-correction surgeries, as suggested by Dr. Everhart, is far more efficient and less expensive with OFAR than building a registry de novo. For example, OFAR is currently launching a pragmatic comparative study of ankle arthritis treatments.

Another important point made by Everhart, Barg et al., and others is the inconsistency and subjectivity of

outcome metrics used in clinical studies.[3] Many of the objective measures that can be collected with consistency (e.g., radiographic angles) may not be meaningful to patients and may not predict a satisfactory long-term clinical outcome. Patient-reported outcomes like satisfaction, pain, and function are generally not collected or reported using consistent or even comparable scales, making a synthesis like this one by Barg et al. extremely challenging. Even complications, which are generally objective data points, can vary greatly during reporting of outcomes. For example, there are not consistent distinctions between minor and major wound complications. Further, very few studies account for additional cost and use of resources that result from complications, which one could argue is a meaningful metric for providers and health systems. The OFAR platform utilizes a PASS scale and five validated outcome metrics from the NIH PROMIS tools.

The current culture of medicine requires orthopaedic surgeons to practice with a diligent balance that accounts for rapidly evolving and advancing techniques and implants, outside measurements of performance, increased patient access to data (including products, procedures, and surgeon “grades”), and a broad and inescapable trend toward lowering health care costs. Hence the urgent need for the establishment of best practices for high-volume and high-cost orthopaedic procedures, like bunion correction. Future studies of this magnitude might be most efficiently and cost-effectively executed on an existing platform like OFAR. The intended result would be a clearer understanding of which procedures are most effective, benchmark data for surgeons tracking their own patient outcomes, and a risk-stratification tool to help identify which patients are at risk of suboptimal outcomes from certain procedures. In addition, the mechanism is scalable for other conditions and injuries, and other subspecialties.

Ultimately, we surgeons are in the position to guide patients to procedures and treatments that are most likely to improve their lives and function, and to recommend procedures, implants, and perioperative treatments that will optimize outcomes and reduce costs. We surgeons are also best positioned to define the outcome metrics and measure the effects of treatment. We believe that the AOFAS OFAR platform is a model for this effort.

References

1. Everhart, J.S., Hallux Valgus Correction: The Best Technique Is Still Up for Debate: Commentary on an article by Alexej Barg, MD, et al.: “Unfavorable Outcomes Following Surgical Treatment of Hallux Valgus Deformity. A Systematic Literature Review”. *J Bone Joint Surg Am*, 2018. 100(18): p. e124.
2. Hunt, K.J., et al., The Orthopaedic Foot and Ankle Outcomes Research (OFAR) network: feasibility of a multicenter network for patient outcomes assessment in foot and ankle. *Foot Ankle Int*, 2014. 35(9): p. 847-54.
3. Hunt, K.J. and E. Lakey, Patient-Reported Outcomes in Foot and Ankle Surgery. *Orthop Clin North Am*, 2018. 49(2): p. 277-289.

Conflict of Interest: None Declared