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Preoperative Daily Step Count for Postoperative Risk Assessment

In Reply to Vaishya and Vaish

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We would like to thank the authors for their interest in our study.[1] They have provided thoughtful and relevant comments focused on how to apply the findings in clinical practice—something we agree is critically important.

First, the authors highlight the type of operation could significantly impact the application of results and clinical interpretation. We agree that the approach and risk of surgery will influence the association between preoperative physical activity and postoperative outcomes.[2] Within the framework of our study design, we attempted to address this through multivariable modeling which included procedural risk. However, our study was not adequately powered to investigate specific procedural or subspecialty differences. This remains a crucial unanswered question; however, we do believe the breadth of included procedures with consistency in the findings supports the generalizability.

Second, the point is made that age demographics and conditions affecting the lower limb would impact the extent of physical activity cohort participants have engaged in. We agree that these are factors could impact physical activity. We would like to point out that the step count was associated with the primary outcome independent of age; however, the authors are correct that there could be differences in activity based on age because older individuals may be more limited. As far as conditions limiting physical activity, we believe that this is mitigated by using longitudinal step counts. The average participant had recorded more than 800 days of activity before their procedure and, therefore, the step count represented in this article was reflective of long-term activity that is less sensitive to the changes that occurred in the time immediately before their procedure.

Next, the authors propose investigating data on prehabilitation program participation among cohort patients.[3] Unfortunately, these data are not currently collected as part of the All of Us Research Program. However, the findings in this study support the continued adoption and development of prehabilitation programs as they can improve preoperative activity levels.[4]

Finally, we agree with the authors that 7,500 steps per day may be a challenging goal for many individuals, particularly those with physical constraints. Notably, this step threshold aligns with other literature measuring the association between daily step count and health outcomes.[5,6] We do encourage caution in assigning a causal relationship between the number of preoperative steps and postoperative outcomes, and instead encourage daily step counts to be another measurement used in preoperative risk stratification. This is an objective data point surgeons can use to counsel patients and their families before operation.

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Postdischarge Opioid Prescribing in Surgical Patients: In Pursuit of a Higher Standard

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We read with considerable interest the recent publication by Beaulieu-Jones and colleagues[1] examining strategies for optimizing postdischarge opioid prescribing in surgical patients.

The authors compared various prescribing guidelines based on patients' surgical procedure or their final 24-hour in-patient opioid consumption amount. Theoretical prescription quantities were generated and compared with patients' actual consumption amount. It was found that an institutional procedure-specific guideline and a previously validated[2] 24-hour predischarge guideline were both viable options to reducing overprescribing. We applaud the authors for their efforts in this area and invaluable contribution to this topic.

We have previously published 2 studies in 2023 within the plastic surgery arena that are also pertinent to the discussion. The first evaluated the impact of a departmental opioid prescribing guideline.[3] This interventional guideline recommended prescriptions based on the average number of pills consumed by patients undergoing different procedures, similar to the Beth Israel Deaconess Medical Center (BIDMC) median guideline described by the authors. We found a significant reduction in prescription amount without a corresponding reduction in consumption amount. Patient reported satisfaction with pain management, and provider communication did not decrease. Together, these indicate that a procedure-specific prescribing guideline can satisfy patients' pain needs and reduce excess opioids, supporting the authors' belief in the use of this type of prescribing philosophy.

Our second study analyzed a logarithmic regression (Personalized Opioid Prescription [POP]) prescribing model that inputs in-patient opioid consumption amount in 24-hour increments to predict postdischarge need.[4] Similar to the study design described by Beaulieu-Jones and colleagues, regression outputs were compared with our previously mentioned procedure-specific guideline[3] or a 24-hour predischarge guideline proposed by Hill and colleagues[5] that is identical to the modified tiered approach described in this study. Among these 3 prescribing models, POP model output most highly correlated with true postdischarge consumption, implying an improved ability to predict patients' postdischarge opioid needs. Additionally, the slope of the POP model correlation (0.799) was greater than that of the 24-hour model (0.686) and procedure-specific model (0.199), reflecting a consumption-to-prescription ratio closer to 1 and, therefore, fewer leftover opioid pills. Accordingly, the 24-hour model may be superior in this regard to the procedure-specific model. Finally, POP model output was found to be a significant predictor of patient-reported persistent opioid use, demonstrating its potential to identify at-risk patients even before discharge.

Overall, Beaulieu-Jones and colleagues achieve a significant accomplishment in expanding the generalizability of the previously validated 24-hour predischarge guideline to more surgical specialties at a second institution.[2] We wholeheartedly agree that feasibility of guideline implementation is an important consideration; an effective and easily implementable intervention may have more use than a difficult-to-implement measure that is more efficacious. In this capacity, the authors provide surgical departments at other institutions a strong starting point for re-evaluating their postdischarge opioid prescribing practices. However, as noted earlier, other, more personalized prescribing models may show even greater promise. Future studies must continue to evaluate efficacy and feasibility of other models as we pursue the optimal balance between pain management and opioid safety for our patients.

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