Patients Value Their Own Pain Over Braking Safety When Deciding When to Return to Driving: A Discrete Choice Experiment on Lower-Extremity Injuries

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Purpose: A common concern for patients sustaining lower-extremity orthopaedic injuries is when they can return to driving. Surgeons currently lack guidelines to assist in this decision. We hypothesized that patients would have strong preferences for an early return to driving over various driving-associated risks.

Methods: We consented and enrolled adult, English-speaking patients with an operative lower-extremity fracture from a Level I trauma center. Each participant completed a Discrete Choice Experiment (DCE) survey consisting of 12 hypothetical return-to-driving scenarios with varied attributes. DCEs are a well-validated technique used to quantify attributes that go into decision-making. Based on the survey responses, we calculated patient preferences for time to return to driving (range, 1-6 months) compared to the risk of hardware failure (range, 1%-12%), pain upon returning to driving (range, none to severe), and driving safety measured by braking distance (range, 0-40 feet at 60 mph) using hierarchical Bayesian modeling. Patient preferences were calculated as the median utility (subjective value) with interquartile range (IQR). The relative importance of each attribute is reported on a scale of 0% to 100%. Hierarchical cluster analysis was performed to identify subgroups with differing preferences. The analysis included 96 patients (mean age, 41 years [standard deviation: 15]; 56% male).

Results: Patients most valued a reduced pain level when resuming driving (62%), distantly followed by the risk of hardware failure (17%), time to return to driving (13%), and braking safety (8%). Patients were indifferent to returning to driving at 1 month (median utility: 28, IQR –31 to 80) or 2 months (median utility: 59, IQR: 41 to 91) postinjury. We identified 2 distinct clusters of patients that differed in their preferences. Cluster 1 members (42% of sample) were more likely to be male (68% vs 48%) and had lower educational attainment (college degree: 28% vs 43%). The preferences of Cluster 1 members placed increased importance on returning to driving sooner (relative importance: 29% vs 9%), and a compromised reaction time (18% vs 6%). Cluster 2 members (58% of sample) were predominantly concerned with an increased pain level attributable to driving (61% vs 36%) and were willing to delay their return to driving to avoid a pain increase.

Conclusion: Patients with lower-extremity orthopaedic trauma demonstrated a strong willingness to forgo earlier return to driving for a decrease in their pain level. Furthermore, patients are least concerned about their driving safety and the risk this may place upon society, and place a greater value on their own pain level and chance of hardware failure over proper braking function. The findings of this study are the first to rigorously quantify patient preferences toward a return to driving, as well as heterogeneity in patient preferences, in an area of ongoing clinical importance.