What Do Orthopaedic Trauma Patients Value in Venous Thromboembolism Prevention? Results of a Prospective Discrete Choice Experiment

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Purpose: Limited scientific evidence to determine the most efficacious venous thromboembolism (VTE) prophylaxis regimen in orthopaedic trauma has led to widespread variability in prescribed regimens. Understanding patient preferences toward the costs, complication profile, and route of administration is imperative in an era of patient-centered health care. This study used a discrete choice experiment (DCE) to determine patient preferences regarding VTE prophylaxis and quantify risk-benefits tradeoffs.

Methods: This prospective study enrolled adult orthopaedic trauma patients indicated for VTE prophylaxis from a Level I trauma center. Participants completed a DCE survey containing 10 hypothetical VTE prophylaxis comparisons with varied attributes. Multinomial logit modeling was used to determine relative preferences and acceptable trade-off estimates for a 1% reduction in VTE complications or side effects. Subgroups were investigated for preference heterogeneity.

Results: Of the 232 enrolled participants (mean age, 47.9 years; 56.9% male), patients most strongly valued a reduction in risk of death by pulmonary embolism (PE) (mean utility, 4.57; P <0.0001), distantly followed by a reduction in the risk of VTE (mean utility, 0.25; P <0.0001), wound complications (mean utility, 0.07; P <0.0001), and bleeding complications (mean utility, 0.05; P <0.0001). Patients preferred oral pills over subcutaneous injections (mean utility, 0.16; P <0.0001) but were willing to change their preference in favor of injections with a 6.98% absolute reduction in the risk of bleeding complications requiring transfusion, a 4.53% absolute reduction in the risk of wound complications requiring reoperation, and a 1.27% absolute reduction in risk of VTE requiring therapeutic anticoagulation. In contrast, only a 0.07% absolute reduction in risk of death due to PE was needed to change patients' route preference. Underlying patient characteristics, including sex, ethnicity, and type of injury, were associated with heterogeneity in VTE prophylaxis preferences.

Conclusion: Orthopaedic trauma patients prefer VTE prophylaxis by oral pill and are most concerned about the risk of death due to PE when choosing a regimen. The findings of this study are the first to document patient preferences with trade-off estimates, as well as heterogeneity in patient preferences, in this important area of ongoing debate.

Table 1 Relative preferences of orthopaedic trauma patients to prevent VTE

Attribute	Level	Mean Marginal Utility	P-Value
Route	Take oral pill over injection	6.7	<.0001
Side Effects	Avoid bruising on leg	1.9	0.4362
	Avoid stomach pain	2.0	-
Bleeding complications	Reduce risk by 1%	1.0	<.0001
Wound complications	Reduce risk by 1%	1.4	<.0001
Blood clot	Reduce risk by 1%	4.5	0.0011
Death due to PE	Reduce risk by 1%	86.1	<.0001

VTE = venous thromboembolism, PE =pulmonary embolism

See pages 49 - 106 for financial disclosure information.