IMPROVING CLINICAL MANAGEMENT OF VTE: SIMULATION IN CONTINUING EDUCATION

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ABSTRACT #CA03

BACKGROUND

Undergraduate and graduate medical education programs are increasingly using simulation as an effective educational format3 and its success has been well-documented in the literature6; however, use of simulation in continuing education is lagging. There is a need to measure and document the effectiveness of simulation-based continuing education in improving clinical decision making.

Evidence-based anticoagulant therapy is often not implemented in patients with venous thromboembolism (VTE), resulting in preventable morbidity and mortality8. This study was conducted to determine if an online, simulation-based continuing medical education (CME) intervention could improve the performance of hematologists/oncologists and cardiologists in managing patients with VTE8.

METHODS

The assessment sample consisted of 146 hematologists/oncologists and 216 cardiologists (Case 1) and 117 hematologists/oncologists and 160 cardiologists (Case 2) who made clinical decisions during the data collection period.

As a result of clinical guidance, significant absolute improvements were observed (Figure 2):

- 15% improvement in orders for the Geneva score for hematologists/oncologists (51% post intervention vs 36% baseline; P = .004) and a 13% improvement for cardiologists (51% vs 38%; P = .002).
- 21% improvement in orders for the Simplified Pulmonary Embolism Severity Index (sPESI) score for hematologists/oncologists (54% vs 33%; P < .001) and a 22% improvement for cardiologists (58% vs 36%; P < .001).
- 12% improvement in appropriate diagnosis of PE for hematologists/oncologists (68% vs 56%; P < .001) and a 19% improvement for cardiologists (71% vs 52%; P < .001).
- 30% improvement in orders for a 3-week follow-up visit for hematologists/oncologists (55% vs 25%; P < .001) and a 20% improvement for cardiologists (74% vs 56%; P < .001).
- 18% improvement in orders to withhold nivara obtained 24 hours post elective surgery for hematologists/oncologists (85% vs 67%; P < .001) and a 20% improvement for cardiologists (76% vs 56%; P < .001).
- 18% improvement in orders to resume nivara obtained 24 hours post surgery for hematologists/oncologists (85% vs 67%; P < .001) and a 27% improvement for cardiologists (75% vs 48%; P < .001).

RESULTS

- The clinical decisions made by each participant were analyzed using an artificial intelligence engine, and clinical guidance was provided based on current evidence and expert recommendation.
- The intervention consisted of 2 patient case simulations presented in an advanced, interactive platform that replicates real-world experience (Figure 1).
- The format allowed learners to make decisions regarding lab tests, diagnoses, and treatments. Importantly, these decisions were not limited by multiple choice; rather, the platform’s interface allowed any decision possible in the scope and depth of actual practice.
- The clinical decisions made by each participant were analyzed using an artificial intelligence engine, and clinical guidance was provided based on current evidence and expert recommendation.
- Participant decisions were collected after clinical guidance and compared with baseline data using a 2-tailed, paired t-test to provide P values and assess the impact of education on clinical decisions.
- The activity launched on September 17, 2015, and data were collected through October 22, 2015.

CONCLUSION

This study demonstrates that virtual simulation CME that immerses and engages the clinicians in an authentic, practical, and consequence-free learning experience can improve evidence-based practice decisions of specialists related to both diagnosis and treatment of patients with VTE, and suggests that this type of intervention can improve patient outcomes.

- Despite significant improvements, ongoing educational gaps were uncovered related to:
  - The use of validated scores to risk stratify patients for risk of PE
  - Tailoring therapy for VTE based on patient and disease characteristics
  - The use of patient-centered care strategies and interdisciplinary team coordination to improve management of patients with VTE

Acknowledgments

The educational intervention and outcomes measurement were funded through an independent educational grant from Janssen Pharmaceuticals, Inc. For more information, contact Jelena Spyropoulos, PhD, Director, Educational Strategy, Medscape, LLC, jspyropoulos@medscape.net.

References


FIGURE 1. Patient Cases

Patient Case 1: Beverly D.

Patient Case 2: Gerry J.

FIGURE 2. Comparison of Clinical Decisions Before and After Clinical Guidance

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References