

Isolation Precautions are an Independent Risk Factor for Venous Thromboembolism

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Disclosure

I have no actual or potential affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest



Introduction

- National Healthcare Reform
 - Pay-for-performance
 - Preventative medicine
- Reform Decisions Derived from National Databases
 - ACS NSQIP Database
 - National Trauma Data Bank



Contact Isolation

- Introduced in 1996
 - Control evolution of multi-drug resistant organisms
 - Reduce spread of infection
 - Risk: benefit ratio coming under scrutiny
- Isolated Patients at Increased Risk for
 - Increased anxiety and depression
 - Longer healthcare stays
 - Less contact with healthcare providers
 - Decreased satisfaction with care



Venous Thromboembolism

- Proven Associated Factors
 - Spinal cord injury
 - Pelvic/lower extremity fracture
 - Venous cannulation
 - Age
 - Immobility
 - Inadequate prophylaxis

There is No Known Association Between Contact Isolation and Venous Thromboembolism (VTE)



Research Significance

- Increased Risk of VTE Proven in:
 - Traumatic injury
 - Certain surgical procedures

**VTE Remains the Most Common
Preventable Cause of Hospital Deaths**



Hypothesis

**Surgical Patients have an Increased
Risk of VTE while on Contact
Isolation**



Methods

- Single-Center Retrospective Analysis
- VTE Data Queried
 - ACS NSQIP Database
 - National Trauma Databank
- Isolation Status Identified by Electronic Chart Review
- Three Study Groups Analyzed:
 - **General /vascular surgery:** January-September 2011
 - **All surgical specialties:** July 2011-June 2012
 - **Trauma patients:** January 2011-December 2012



Results

	+ VTE on Isolation	+ VTE while not on isolation	Statistics*
General and vascular surgery (n= 1,941)	5.2% (5 of 97)	0.9% (16 of 1,844)	<ul style="list-style-type: none">• Odds ratio 5.9• p= 0.0037
All surgical specialties (n= 2,554)	3.7% (5 of 135)	1.1% (26 of 2,419)	<ul style="list-style-type: none">• Odds ratio 3.5• p= 0.0214
Trauma patients (n= 4,317)	17.5% (44 of 251)	3.5% (141 of 3,925)	<ul style="list-style-type: none">• Odds ratio 5.9• p= < 0.0001

* Fisher's Exact and Chi-Square



Discussion

- Significant Association Between Surgery/Trauma Patients on Isolation and the Development of VTE
- Association Possibly Related to:
 - Fewer contacts with healthcare workers
 - Less encouragement to ambulate
 - More medication administration errors
 - Decreased ambulation opportunities
 - Patients unable to leave the room
 - Decreased patient satisfaction with care
 - Leads to non-compliance and Inadequate VTE prophylaxis



Study Limitations

- No Controls for Potential Confounding Factors
 - Degree of medical illness
 - Hospital length of stay
 - Type of injury
 - Contraindications to anticoagulation
 - Temporal relationship of VTE and isolation unproven
- Single Center Retrospective Study
 - Limits generalizability of data
 - Cannot assign absolute statistical risk



Conclusions

- The Occurrence of Venous Thromboembolism is Increased in Surgery Patients Who are Placed On Isolation Precautions
 - Clinically relevant in terms of quality of care
- Current Isolation Protocols Should be Reviewed to Identify Measures to Mitigate This Risk in Patients Who Require Contact Isolation
 - Dedicated isolation wards
 - Dedicated ambulation areas
 - Ambulation aids
 - Staff education
 - Elimination of routine MRSA surveillance



Future Research

- Multivariate Data Analysis to Control for
 - Injury severity score
 - Age/gender/body mass index
 - Other factors
- Prospective Trial Designs
 - Dedicated ambulation aids
 - Isolation units
- Data analysis from other institutions

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