The Argument Against Routine Duplex Ultrasound After Truncal Ablation: An Evidence-Based Cost-Benefit Analysis

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DISCLOSURES—NONE

NOW ROUTINE POST EVA DUPLEX SURVEILLANCE

COMMON PRACTICE
“Suggested” by SVS/AVF Guidelines (Grade 2; LOE C)
BUT WE NEVER DID IT AFTER L&S

DUPLEX FUNCTIONS AS A SCREENING TEST AFTER EVA
A test designed to identify and eliminate those, particularly asymptomatic patients, who are not affected by a disease
But Also Functions as a DIAGNOSTIC TEST
To Establish the Presence of Disease as a Basis for Treatment

IDEAL SITUATION FOR A SCREENING TEST
• The Prevalence of The Condition is Moderately High
• The Condition has Serious Consequences
• The Rx of the asymptomatic condition is better than in the symptomatic patient

SERIES WITH SMALL POPULATIONS
STATISTICAL PROBLEM
CAN LEAD TO AN OVERESTIMATION OR UNDERESTIMATION OF THE INCIDENCE
KABNICK CLASSIFICATION OF ENDOVENOUS
HEAT INDUCED THERMAL INJURY (EHIT)

PREVALENCE OF VTE

<table>
<thead>
<tr>
<th>STUDY</th>
<th>TYPE</th>
<th>NUMBER</th>
<th>EHIT/DVT (%)</th>
<th>PE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DERMODY</td>
<td>META</td>
<td>13,845</td>
<td>0.72</td>
<td>0.19</td>
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<tr>
<td>MO</td>
<td>REG</td>
<td>30,007</td>
<td>0.27</td>
<td>0.007</td>
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<td>B-GAMPEL</td>
<td>NSQIP</td>
<td>3,874</td>
<td>1.57</td>
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<td>O’DONNELL</td>
<td>ADM</td>
<td>44,617</td>
<td>3.7</td>
<td>0.28</td>
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What is the Validity Of Duplex Scans for EHIT?

• No Prospective Blinded Study vs. “Gold Standard”
  
  • Systematic review and Meta-analysis with ROC of DUS of Asymptomatic Patients for Proximal DVT → sensitivity of 0.82 & a specificity of 0.98
  
  • 10% False + rate
  
  • Distinction Between EHIT 1 and 2 Subtle → Over/Under reading
  
  • MUST USE SURROGATE STUDY OBSERVER BIAS

IDEAL SITUATION FOR A SCREENING TEST

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• The Rx of the asymptomatic condition is better than in the symptomatic patient

Does The Condition have Serious Consequences?

• Natural History of UnRx’d EHIT Poorly Understood

• Sufian-Of 61 EHIT 2 patients Not Rx’d with Heparin → Only 3 (4.9%) progressed to EHIT 3

• The Preponderance of Patients are Asymptomatic

• PE Rate Extremely low

• IMPOSSIBLE TO CALCULATE RELATIVE & ABSOLUTE REDUCTION IN MORTALITY

• THE CLASS RCT → No Duplex in 210 Patients → No VTE

Comparison of Incidence of DVT Among Surgical Procedures

<table>
<thead>
<tr>
<th>% DVT</th>
<th>RCTs (n=1,482)</th>
<th>Case Series (n=12,963)</th>
<th>Admin (n=62,750)</th>
<th>THR (n=100)</th>
<th>GBP (n=198)</th>
<th>ProofRx</th>
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<tr>
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<td>0.06</td>
<td>0.756</td>
<td>3.38</td>
<td>5.8</td>
<td>0.04</td>
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<td>2.0</td>
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</table>

ACCP we suggest that periodic surveillance with venous ultrasound (VCU) should not be performed (Grade 2C)
CALCULATION OF BENEFITS

- NO DEATHS REPORTED IN THIS SYSTEMATIC REVIEW → No Calc’n of LIVES SAVED
- NO COMPARISON BETWEEN STRATEGIES OF ROUTINE DUPLEX vs. NO DUPLEX → DVT RATES
- THUS → DIFFICULT TO CALCULATE QALYS
- AS A CONSEQUENCE FOCUS ON COSTS TO IDENTIFY ONE POSITIVE CASE

COST OF SCREENING AFTER EVA

- ENDOVENOUS ABLATION (n = 300,000) $15,244/POSITIVE STUDY
- DUPLEX SCAN (n = 300,000) X $107 = $32,100,00
- TREATMENT COSTS $1,869,505 For 2100 Patients [Includes Rx of Complications & False +’s]

COMPARISON OF Dx & Rx COSTS

- DIAGNOSIS $32,100,000
- TREATMENT 1,869,505

The expenditure of resources on screening must be justifiable in terms of eliminating or decreasing adverse health consequences.

COST PER POSITIVE STUDY $15,284

Cost/Positive Study for Various Screening Studies

- EVA $15,284
- MAM
- DVT
- STROKE
- MULTIPLE TRAUMA

CORRELATION OF COST/POSITIVE STUDY WITH EHIT/DVT PREVALENCE

- HIGHER RISK GROUP
- PREVALENCE → %
OUR SUGGESTIONS
ABANDON ROUTINE SCREENING

• Current guidelines should be revised →
  Increase the yield of the Screening study

• Use of risk assessment tools (i.e. Caprini score)
  to identify High-Risk Group of patients that
  will benefit from Screening duplex US and/or
  DVT prophylaxis