What Is The True Incidence of PE In Patients With Iliofemoral DVT? How Many Of These Have Right Ventricular Strain?

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Iliofemoral DVT

- 24% of all lower extremity DVT and 39% of proximal DVT
- Worse outcomes
  - Increased risk of recurrent VTE
  - Increased incidence and severity of post-thrombotic syndrome
  - Incidence of PE at presentation?

Incidence of PE in iliofemoral DVT

- 24% of pts had Si/Sx of PE, but did not correlate with presence of PE on scan
- 2 pts w massive PE (4%)

Jaff et al. Circulation 2011

Iliofemoral DVT and PE

(Plate et al 1985 Br J Surg)

- 49 pts w acute iliofemoral DVT
  - Study of thrombectomy for iliofemoral DVT
- Perfusion scan + CXR at presentation
  - 45% positive
  - 37% normal
  - 18% inconclusive
- 24% of pts had Si/Sx of PE, but did not correlate with presence of PE on scan
- 2 pts w massive PE (4%)

Incidence of PEs: 45%
- Perfusion scan + CXR: sensitivity 85%; specificity 98% if inconclusive excluded (PIOPED II)
- CTA now gold standard; higher sensitivity and similar specificity. True incidence may be higher

Fewer than half of PEs were symptomatic
- Incidence of massive PE 4%

Disclosures

- None

PIOPED II
Iliofemoral DVT and PE  
(Partsch et al JVS 1996)
- 140 pts w acute iliofemoral DVT  
  - Study of LMWH dosing: daily vs. BID  
- 46% incidence of PE (V/Q scan)  
  - 71% of patients with PE were asymptomatic  
  - If age < 40, 14% had PE (all asymptomatic)  
  - If age 40-70, 35% had PE (63% asymptomatic)  
  - If age > 70, 55% had PE (73% asymptomatic)  
- 55 pts → MRI  
  - 18% had thrombus extension to IVC  
  - If IVC extension, 50% incidence of PE  
  - If no IVC extension, 33% incidence of PE

Iliofemoral DVT and PE  
(Partsch et al JVS 1996)
- Incidence of PE in setting of iliofemoral DVT increases with age  
- Younger patients are less likely to be symptomatic  
  - Cardiopulmonary reserve?  
- Extension of clot to IVC correlates with markedly increased incidence of PE

Iliofemoral DVT and PE  
(Girard et al AJRCCM 2001)
- 400 pts w iliofemoral DVT  
  - PREPIC study of IVC filters  
- 56% incidence of PE  
  - V/Q scan (+ pulmonary angiography if not high probability) → expect similar S&S to CTA  
  - 26% of PEs asymptomatic

Iliofemoral DVT and PE  
(Girard et al AJRCCM 2001)

<table>
<thead>
<tr>
<th>Symptoms present</th>
<th>PE Confirmed</th>
<th>PE Absent</th>
<th>PE Incurred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom(s)</td>
<td>145</td>
<td>51</td>
<td>14</td>
<td>210</td>
</tr>
<tr>
<td>Total</td>
<td>146</td>
<td>102</td>
<td>25</td>
<td>273</td>
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<tr>
<td>Sensitivity</td>
<td>75%</td>
<td>67%</td>
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Definition of abbreviations: PE = pulmonary embolism; PPV = positive predictive value; NPV = negative predictive value

Iliofemoral DVT and PE  
(Meignan et al JAMA 2000)
- 622 outpts w proximal DVT, asymptomatic for PE  
  - Study comparing two LMWH regimens  
- All had perfusion scans; 379 had V/Q scans  
- 32-45% high-probability scans for PE  
  - “Estimated frequency of silent PE was 39.5 to 49.5%” → including some intermediate probability scans?  
- PE recurrence at 3 mo (on bx) was 1.3% with no difference between patients with baseline HP vs. normal scans

Iliofemoral DVT and PE  
(Meignan et al JAMA 2000)
- RV dysfunction associated with poor prognosis in pts w PE  
  - 2.53 OR for short-term mortality (Sanchez et al. Eur Heart J 2008)  
- Paucity of data on RV function in setting of iliofemoral DVT and PE; no echocardiography, EKG, or CTA in studies reviewed  
- 4% incidence of massive PE (Plate et al) similar to expected incidence in all presenting PEs (~5%)  
  - By inference, incidence of submassive PE (right heart strain) might be expected to be similar to incidence in all diagnosed PEs (~40%), particularly given that up to 70% are asymptomatic  
  - However, this has not been shown.

Goldhaber et al. ICOPER
Take Home Points

- Iliofemoral DVT associated with ~50% incidence of PE
- Many of these PEs will be asymptomatic (especially in younger patients)
- Presence of PE at presentation does not correlate with recurrent PE while on therapy
- Paucity of data on incidence of right heart strain with PE in setting of iliofemoral DVT

References

- Botteman et al. Sensitivity and Specificity of Perfusion Scintigraphy Combined with Creactive Protein for Acute Pulmonary Embolism in PEPID II. JNM. October 2008.

Thank you!

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