Venous Thromboembolism in Two Professional Soldiers: a Case Report

Presented by
Ljiljana Belošević, MD
Institute of Aviation Medicine, Ministry of Defence Republic of Croatia
Why venous thromboembolism (VTE)?

• Since 2006, Croatian soldiers have participated in military operations/missions
  - Afghanistan, Golan Heights, Kosovo

• Pre and post-deployment medical and psychological assessment
  - to identify conditions which might be contraindications for deployment
  - to maintain a desirable level of health

• Reasons for earlier returns - injuries and two cases of VTE
What have we learnt from the literature?

- **VTE in general population**

  - VTE = DVT and PE
  - Significant source of morbidity and mortality
  - Third most common acute cardiovascular disease

- Many deaths still due to delay in diagnosis or misdiagnosis
What have we learnt from the literature?

VTE in military population

Iraq 2003.- American journalist died due to VTE

Why?

Inherited hypercoagulable blood disorder, reduced mobility due to prolonged time spent in limited space, dehydration
What have we learnt from the literature?

**VTE in military population - Incidence**

- Over the past decade - increase in the incidence
- Ambulatory cases increased from 3.2 per 100 000 in 1999 to 16.3 per 100 000 in 2008.
- Hospital cases increased from 1.7 per 100 000 to 14.3 over the same span of time
What have we learnt from the literature?

VTE in military population

• An overall risk for VTE in soldiers - lower than among general population

• Better health among active duty population
• Screened population of relatively young adults
What have we learnt from the literature?

Risk factors for VTE

• In clinical settings - injuries and surgery

• During deployment - injuries combined with prolonged air or ground transportation, tobacco use, dehydration, age

• In many cases VTE occurs in the presence of both inherited and acquired risk factors
What do we know?

Working environment/ conditions

- Work in the war zone or zone of conflicts
- Work in the field/ unfamiliar terrain
- Interaction, cooperation, communication with other military personnel and locals
- Far away from home

- To cope with all this it is essential to be in a good health, physical and mental condition
What do we know?

Working environment – risk factors for VTE

- Extreme climate conditions
- During summer time temperature up to 45°C
- Patrol units – a few hours per day/several times a week
- Military vehicles – limited space
- Personal equipement (weigh 27 kg)
Basic case descriptors

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Gender</th>
<th>Age</th>
<th>Country of deployment</th>
<th>Time of arrival</th>
<th>Time of incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>male</td>
<td>38</td>
<td>Afghanistan</td>
<td>January</td>
<td>July</td>
</tr>
<tr>
<td>Case 2</td>
<td>male</td>
<td>24</td>
<td>Golan Heights</td>
<td>June</td>
<td>August</td>
</tr>
</tbody>
</table>
## Risk factor for VTE

<table>
<thead>
<tr>
<th>Case 1</th>
<th>Inherited hypercoagulable blood disorder</th>
<th>Recent air travel</th>
<th>Smoking</th>
<th>Limited mobility</th>
<th>Dehydration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gene 4 PAI 1 polymorphism</td>
<td>no</td>
<td>Passive (ex smoker)</td>
<td>yes</td>
<td>possible</td>
</tr>
<tr>
<td>Case 2</td>
<td>Faktor V Leiden</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>possible</td>
</tr>
</tbody>
</table>
What have we learnt from our cases?

- Working environment – might have an important role in expression of VTE
- Occupational health professionals should be familiar with workplace environment
- Education - an important tool in prevention
Thank you for your attention