Deep venous thrombosis in Benghazi: demographic features and acquired risk factors

El Sahati M, Attia A, Hawil A, Hamed M, Latiwish M.

Abstract
Introduction: Deep venous thrombosis (DVT) remains a common cause of morbidity and mortality in hospitalized as well as generally healthy individuals. Little is known about DVT in Benghazi. The aim of this study is determining the demographic features and risk factors in the studied group. Methods: Medical records of all patients presented to coagulation clinic in Jamhoriya hospital from January 2007 to December 2010 were analyzed for age, sex, chief complaint, site of thrombosis, and risk factors. Results: The total number of patients was 131. There were 88 females and 43 males (male to female ratio is 1:2.04). The mean age was 47.06 years (SD 17.02). One hundred and seven patients (81.7%) presented with painful swelling of limb. Diagnosis was confirmed by Doppler Ultrasound in 121 patients (92.4%). Upper and lower limbs were involved in 118 patients (90.1%). Pulmonary embolism was diagnosed in six patients (4.6%), portal vein thrombosis was diagnosed by Doppler Abdominal USS in four patients (3.1%). Immobilization as a risk factor was found in 39 patients (29.7%). Nineteen patients (14.5%) were immobile because of surgery. Twenty-nine patients (22.1%) presented with more than one risk factor. There is no risk factor in 30 patients (22.9%). Discussion: Females are affected more than males. Doppler ultrasound was used in the diagnosis of most of cases probably because most of cases came with painful limb swelling. Prolonged immobilization was the main risk factor for DVT especially postoperative immobility. Conclusion: Females are affected more than males and the mean age was 47.03 years. Prolonged immobilization is the main risk factor and prophylactic anticoagulant therapy should be considered in patients undergoing surgery and other immobile patients. We recommend special laboratory of coagulation for screening of thrombophilia (inherited and acquired).

Keywords: Cervical Spine Injury, reduction and decompression, spinal stabilization, Neurological assessment, Benghazi,
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Introduction
Venous thrombo-embolism (VTE) is a common health problem in most countries. It manifests with deep venous thrombosis (DVT) and pulmonary embolism (PE). About one-third of patients with symptomatic VTE manifest PE, whereas two-thirds manifest DVT alone. PE is clearly the most life-threatening complication of acute DVT. The incidence of VTE is about 1.5 per 1000 person-years.2 Each year in the united states, more than 200,000 people develop venous thrombosis, of those 50,000 cases were complicated by PE.3 Acquired risk factors or predisposing conditions for thrombosis include prior thrombosis, recent surgery, trauma, immobility, malignancy, pregnancy and use of oral contraceptive pills4 (OCP). Many patients have more than one acquired risk factor for thrombosis. Ultrasonographic examination due to its high sensitivity and specificity, especially for proximal deep veins, has replaced venography as the gold standard diagnostic method for DVT.5,6 Early recognition and appropriate treatment of DVT and its complications can save many lives. The aims of DVT therapy include reduction of mortality and prevention of PE and post-thrombotic syndrome. Despite the impact of VTE on health in most countries, little is known about DVT in Benghazi. Herein, we studied the demographic features and acquired risk factors of patients with VTE referred to the coagulation clinic - Jamhoria hospital – Benghazi in the period from January 2007 to December 2010.

Methods

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This descriptive case series study was conducted in coagulation clinic (the only coagulation clinic in the Eastern part of Libya) - Jamhoria hospital – Benghazi. Medical records of patients with documented diagnosis of VTE referred to coagulation clinic - Jamhoria hospital in the period from January 2007 to December 2010 were analysed for age, sex, chief complaints, site of thrombosis, and acquired risk factors. Statistical analysis of data was done by PASW 18 (Predictive Analytics Software). Quantitative data were expressed as means and standard deviation (SD) and qualitative data as percentage.

**Results**

We have included 131 patients with thrombosis in our study. There were 88 females and 43 males (male to female ratio is 1:2.04) (fig.1, fig.2). The mean ±SD age of the patients was 47.06±17.02 (table1). In this study, leg swelling was the most common presentation of DVT. One hundred and seven patients (81.7%) presented with painful limb swelling, 12 patients (9.2%) presented with painless limb swelling. Four patients (3.1%) presented with abdominal pain, three patients (2.3%) presented with dyspnea alone, three patients (2.3%) presented with chest pain, and two patients (1.5%) presented with both chest pain and dyspnea (fig.3). Diagnosis was confirmed by doppler ultrasound in 121 patients (92.4%) while CT-angiography was used in 6 patients (4.6%) and in 4 patients (3.1%) both Doppler Ultrasound and CT-angiography were used (table 2). Upper and lower limbs were involved in 117 patients (89.3%). Lower limbs were involved more than upper limbs (114 patients [87%] for lower limbs and three patients [2.3%] for upper limbs). The left lower limb was involved in 61 patients (46.5%) while the right lower limb was involved in 53 patients (40.45%). Left lower limb was involved in 61 patients (46.56%), while right lower limb was involved in 53 patients (40.45%). Upper limbs were involved in three patients (polycythemia

**Table-1** Distribution of the patients by their gender and mean age

<table>
<thead>
<tr>
<th>Gender</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>45.78</td>
<td>15.18</td>
</tr>
<tr>
<td>Male</td>
<td>49.67</td>
<td>20.22</td>
</tr>
</tbody>
</table>

**Table-2** Distribution of the patients according to the diagnostic method

<table>
<thead>
<tr>
<th>INVESTIGATION</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doppler US</td>
<td>121</td>
<td>92.4</td>
</tr>
<tr>
<td>CT-angiography</td>
<td>6</td>
<td>4.6</td>
</tr>
<tr>
<td>Doppler and CT-angiography</td>
<td>4</td>
<td>3.1</td>
</tr>
</tbody>
</table>
vera, combined protein S and C deficiency and Non-Hodgkin’s lymphoma). The mean age of upper limb DVT was 44.6 years. Pulmonary embolism was diagnosed in six patients (4.5%), portal vein thrombosis was diagnosed by doppler abdominal USS in 4 patients (3.1%). Four patients (3.1%) presented with both lower limb thrombosis and pulmonary embolism (fig.4). Four patients presented with portal vein thrombosis (post-splenectomy, Non-Hodgkin’s lymphoma, myeloproliferative disorder and idiopathic), mean age was 50 years. In a four-weeks period prior to DVT diagnosis, prolonged immobilization (for more than 3 days) as a risk factor was found in 39 patients (29.7%) and 19 patients (14.5%) were mobile because of surgery, while ten patients (7.6%) gave history of cerebrovascular accident (CVA), and nine patients (6.9%) were cancer patients. There was no acquired risk factor in 32 patients (24.4%) and 29 patients (22.1%) presented with more than one risk factor. In patients presented with more than one risk factor, 17 patients (58.6%) gave history of previous DVT, nine patients (31%) gave history of recent surgery while eight patients (27.6%) were cancer patients.

Discussion
Our study demonstrated demographic data of patients referred to our clinic. Females are affected more than males. The mean age was less in female patients as compared to males. In a study by Silver-stein et al. 25-year survey between 1966 and 1990, the incidence of DVT in males remained constant in all age groups, decreased for females younger than 55 years and increased for women over 607, while Cushman showed that incidence of DVT increases dramatically after age of 45 and this rise is slightly higher in men than women8. Doppler ultrasound was used in the diagnosis of most of cases probably because most of cases presented with painful limb swelling. Left lower limb was involved in 61 patients (46.56%), while right lower limb was involved in 53 patients (40.45%), results was comparable with study by S. Hajsadeghi et al 10. %). Lower limbs were involved more than upper limbs (87% Vs 2.3%). Upper limbs involved in three patients. The mean age of upper limb DVT was 44.6 years. Four patients presented with portal vein thrombosis and mean age was 50 years. In a one-month period prior to DVT diagnosis, prolonged immobilization was the main risk factor for DVT especially post-operatively. Different types of surgery were complicated by DVT and the most common surgeries were fracture neck of femur and caesarian surgery. Post-operative DVT was more in females compared to males (74% Vs 24%), and the most common surgeries in females were gynecological/obstetric, abdominal and orthopedic surgeries. Other causes of immoblelities included medical illnesses like cardiac disease in 7% of patients, cerebrovascular accident in 7% of patients and trauma in 4% of patients. No clear acquired risk factors in 30 patients (22.9%). In our study, the most common site of VTE in all age groups was lower extremity and the most common veins affected were femoral and popliteal veins. This is consistent with the study of Ismail et al., which reported that the most common DVT site in lower extremity is combined ilio-femoral-popliteal thrombus, followed by popliteal vein thrombus9.

Conclusion
Females are affected more than males and the mean age was 47.03 years. Prolonged immobilization is the main risk factors for developing DVT and PE and surgery is the main known acquired risk factor. So, it is necessary to quantify this risk in order to try to prevent it by means of prophylactic anticoagu-

Figure-4 Distribution of the patients according to the site of thrombosis

UL: upper limb, LL: Lower limb, PE: pulmonary embolism

Figure-5 Distribution of the patients according to the risk factors of venous thromboembolism

No cause, OCP, Pregnancy, Surgery, Thromb, CVA, Others, CDX, 2 risk factors
A rare cause of venous thrombosis: Congenital absence (agenesis) of the inferior vena cava

Deep vein thrombosis is a frequent finding in otherwise healthy, young adults who are diagnosed with congenital absence (agenesis) of the inferior vena cava – a rare anomaly. This condition is best diagnosed by computed tomography angiography with venous phase imaging, and is managed using anticoagulation, percutaneous catheter-directed mechanical thrombectomy and thrombolysis.

A 28-year-old man presented to the emergency department with sudden but significant swelling of his left lower extremity of less than 24 hours duration. It was associated with mild discomfort, tingling and dark discoloration of the left leg. He denied trauma or other risk factors of DVT.

A contrast-enhanced CT scan of the abdomen and pelvis revealed a fibrosed IVC (Figure). Both kidneys were of normal shape, size and density. There was no evidence of DVT.

All patients with suspected or proven DVT due to IVC should be put on anticoagulation therapy immediately and should be on lifelong warfarin therapy to reduce the risk of recurrent DVT.