Deep vein thrombosis at King Abdul Aziz University Hospital

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ABSTRACT

Objective: To study the incidence of deep vein thrombosis and pulmonary embolism at King Abdul Aziz University Hospital. To determine the risk factors, use of different diagnostic modalities, treatment given and to compare our findings with those reported in the literature.

Methods: Retrospective study which included all cases of deep vein thrombosis and pulmonary embolism admitted to the medical ward of King Abdul Aziz University Hospital during the period between January 1994 till March 1999 were analyzed.

Results: Total of 75 patients were diagnosed to have deep vein thrombosis with mean age of 44.16 +/- 14.5 years and male:female ratio of 1:2. Doppler ultrasound was used for the diagnosis in 56 of 75 patients (75%). Pulmonary embolism as a complication of deep vein thrombosis developed in 24 of 75 patients (32%). Prolonged immobilization was found to be the most common risk factor 17 of 75 (23%). All the patients were treated with conventional heparin followed by warfarin.

Conclusion: As discussed, our results are comparable with those reported in the literature. Post operative patients who are anticipated to have prolonged immobilization should receive prophylactic anti coagulation with subcutaneous heparin. Thrombophillia screeing should be reserved for those with recurrent deep vein thrombosis or patients with positive family history.

Keywords: Deep vein thrombosis, pulmonary embolism, risk factors.

Saudi Medical Journal 2000; Vol. 21 (8): 762-764

Venous thrombo embolism is a serious disorder and frequently heralds fatal outcome. The various modalities of treatment of deep vein thrombosis (DVT) and pulmonary embolism (PE) have changed considerably over the last 10 - 20 years and will continue to do so over the next coming years. The non specific nature of the clinical presentations of both DVT and PE may lead to substantial delay in diagnosis and initiation of therapy, in turn accounting for significant morbidity and mortality. Objective testing for DVT is crucial as clinical assessment alone is unreliable[2,3] because undiagnosed DVT can cause fatal PE[4,5] and because treatment of DVT is effective. More than half of the cases are never diagnosed and all too frequently PE is first determined at autopsy.[6-8] Patients with acute lower extremity DVT often do not exhibit erythema, warmth, swelling, pain or tenderness and the sensitivity and specificity of the clinical examination are too low to be relied upon.[9] The objective of our study is to cause awareness of the risk factors for DVT in our hospital to enhance clinical suspicion and encourage prophylaxis to high risk group.

Methods. The study included all cases of DVT that were admitted to the medical ward of King Abdul Aziz University Hospital (KAUH), Jeddah, Saudi Arabia during the period between January 1994 till March 1999. The medical records of all patients were reviewed. Patients age, sex, and nationality were recorded as well as the site of DVT,

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Received 27th February 2000. Accepted for publication in final form 14th May 2000.

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whether right, left or bilateral and its extent, whether above knee, below knee or extensive (above and below knee together). Patients admitted to our hospital with suspected clinical diagnosis of DVT first had doppler ultrasound as the initial investigation to prove the diagnosis. If the results were inconclusive and there was a strong clinical suspicion of DVT, they underwent contrast venography. Patients with suspected PE had ventilation perfusion scan and if this was negative and there was a strong clinical suspicion, they would undergo pulmonary angiography. History of previous DVT was reported. Different risk factors such as prolonged immobilization, pregnancy, post operative DVT and the type of surgery, use of contraceptive pills, heart failure, bone fracture, underlying malignancy were all recorded. Measurement of protein C, S and anti thrombin III were carried out in patients with recurrent DVT, those with family history of thrombosis and those with unusual thrombosis site. Type of treatment given to the patient was recorded whether heparin followed by warfarin or thrombolytic therapy. Statistical analysis was carried out using the statistical package for social sciences (SPSS 7.5). T test and chi-square were used appropriately. Results were considered significant if the P value is less than 0.05.

Results. A total of 75 patients were analyzed with mean age of 45.16 ± 14.5 years and male:female ration of 1:2. Most of the admissions were non-Saudi (67%). Left sided DVT was the most frequent type of presentation 44 of 75 (59%) left sided while 26 of 75 (35%) right sided and 5 of 75 (7%) had bilateral DVT. Extensive DVT was noticed in 57 of 75 (77%) while below knee was reported in 11 of 75 (25%) and 6 of 75 (8%) above knee. Doppler ultra sound was carried out for 56 of 75 (75%) of the patients to confirm the diagnosis while venography was required in 28 of 75 (37%) of the patients. Pulmonary embolism developed in 24 of 75 (32%) who were diagnosed by ventilation perfusion scan, none of the patients required pulmonary angiography. History of recurrent DVT was documented in 19 of 75 (26%) of patients, 7 of them (37%) had antiphospholipid syndrome, one (5%) had Bechet's disease, while in the remaining 11 (58%) no cause could be found. Seventeen of 19 patients who had recurrent DVT had extensive DVT involving both above and below knee (90%), whereas 3 of the nineteen patients (16%) had more than 2 recurrences. Risk factors as shown in Table 1 showed that prolonged immobilization was the most common risk factors 17 of 75 (23%). Twelve of 17 (70%) of patients who had history of prolonged immobilization developed extensive DVT, versus 5 of 17 (29%) who developed below knee DVT (p0.07). Three of 5 (60%) pregnant ladies and 3 of 5 (60%) of those who were using contraceptive pills developed recurrent DVT versus 2 of 5 (40%) and 2 of 5 (40%) who did not (both p0.06). Investigations, such as measurement of protein C and S and antithrombin III were carried out for 6 of 19 (84%) patients with recurrent DVT, none of them had any abnormality. All patients were treated with heparin followed by warfarin, only one patient received strepto kinase for extensive pulmonary embolism.

Table 1 - Frequency of different risk factors for deep vein thrombosis.

Risk Factors	Number of patients (%)
Immobilization	17 (23%)
Post operative	12 (16%)
Post delivery	7 (9%)
Travel	6 (9%)
Contraceptive pills	5 (7%)
Pregnancy	5 (7%)
Heart Failure	5 (7%)
Fracture	3 (4%)
Malignancy	3 (4%)
Drug addiction	3 (4%)

Discussion. Deep vein thrombosis is more common in the 4th decade of life. Risk is increased by advancing age and patients over 40 may qualify for prophylaxis.[10] Despite the different diagnostic tools available for the diagnosis of DVT, contrast venography (CV) remains the gold standard[11] but it is not an ideal one due to its invasive nature, risks associated with contrast media and its technical demand. Of the non invasive methods for diagnosing DVT, impedence plethysmography, venous ultra sonography have been extensively evaluated and widely used. In our study doppler ultrasound was used more than contrast venography. None of the patients had impedence plethysmography as it is not available in our institute. In general impedence plethysmography is less accurate than venous ultrasonography.[12-15] Left sided DVT is the most common type of presentation as reported by Lindblad et al.[6] Extensive DVT was found to be more common in immobilized patients, this has been reported by others, thus emphasizing the use of prophylactic subcutaneous heparin which decreases the risk of DVT.[1,18-23]

Pregnancy and hormone replacement therapy doubles the risk of venous thrombo embolism.[24] The risk is higher near the start of therapy than after long term use.[25] In our study post delivery, contraceptive

pills and pregnancy were risk factors in that order of frequency. Malignancy as a cause of DVT was seen in only 4%, although it has been reported that previously unsuspected cancer is identified in patients with newly diagnosed DVT.[26,27] Surgery predisposes patients to DVT and PE as late as one month post operatively.[28] Thrombophillia screening like measurement of protein C, S and anti thrombin III is recommended for recurrent DVT.[29] Thrombophillia screening was negative in 84% of our patients who had recurrent DVT. Low molecular weight heparin was not used in any of our patients as it is not available in our hospital, although a number of prospective trials have demonstrated the efficacy of low molecular weight heparin.[30,31] D-Dimer test was not used in any of our patients as a diagnostic tool. The reason being the substantial variation in the assay performed for D-Dimer. At present, specific recommendations regarding the appropriate use of this test cannot be made.[32,33]

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