SUMMARY

COMPARISON OF CLINICAL PROBABILITY TESTS WITH FINDINGS OF VENTILATION/PERFUSSION SCANNING AND/OR PULMONARY COMPUTERIZED TOMOGRAPHY IN THE DIAGNOSIS OF PULMONARY THROMBOEMBOLISM

Pulmonary thromboembolism is a condition of which antemortem clinical diagnosis is quite difficult because of non-specificity of its signs and symptoms. Unless treated, mortality rate may be as high as 30% but it may decrease to 3 to 10% with appropriate treatment.

The present study evaluated clinical signs and symptoms, laboratory findings such as arterial blood gases and D-dimer concentrations, and findings from imaging modalities such as chest x-ray, transthoracic echocardiography, lower extremity venous Doppler ultrasound, SBTPA, and V/Q scanning.

The present study included 49 patients with pulmonary thromboembolism (PTE). When the patients with PTE were evaluated by their risk factors, the most common risk factor was age with elderly population constituting the majority of the patients. When the patients were evaluated by their presentation symptoms, it was concluded that they had presented most frequently with complaints of breathlessness (93.9%) and side pain (59.2%). Among the other symptoms, palpitations and hemoptysis were seen in 46.9% and 12.2% of the patients, respectively.

At the presentation time, the patients were divided into groups of low, moderate and high clinical probabilities using Wells and Geneva scoring systems. According to Wells score, of the patients with PTE 18.4% (n = 9) had low, 53.1% (n = 26) moderate and 28.6% (n = 14) high clinical scores whereas according to Geneva scoring system 8.2% (n = 4), 75.5% (n = 37) and 16.3 (n = 8) had low, moderate and high clinical scores. Majority of the patients had moderate clinical probability on both clinical scoring systems. They were the cases requiring further investigation because we used latex agglutination method as D-dimer assay. D-dimer values below a certain threshold level (500 ng/ml) have been suggested as a useful test to exclude diagnosis of PTE. Clinical classification of probability for PTE makes or excludes diagnosis of PTE at 99% of times with SBTPA and venous DUS following D-dimer measurement made using ELISA method. In regard to the arterial blood gases (ABG) of the patients, ABGs were normal in 6.1%. Thus, diagnosis of PTE cannot be

excluded in the patients with normal ABGs. In regard to chest x-ray investigations, 14.2% (n = 7) of the patients had normal chest x-ray findings.

The most common finding on echocardiography was elevation in pulmonary arterial pressure (PAP) in 56.8% of the patients (> 18 mmHg) followed by tricuspid regurgitation (52.3%). 40.9% of the patients had normal echocardiography findings.

Clinical symptoms of deep vein thrombosis (DVT) were present in 28.6% (n = 12) of the patients in the current study. Thrombus was observed on venous Doppler USG in 85.7% of the patients with clinical symptoms of DVT and this was statistically significant (p < 0.05). Thrombus was present on venous Doppler USG in 20% (n = 7) of the patients without clinical symptoms of DVT.

Objective of the second step in the diagnostic algorithm is making diagnosis of PTE using non-invasive diagnostic tests. For this purpose, SBTPA or V/Q scanning may be used. When the results of perfusion scanning in the patients with PTE, majority of the patients was in the groups of either moderate (45%) or high (50%) probability. Diagnoses of the patients with perfusion scanning of moderate probability were confirmed by SBTPA.

Findings of PTE on pulmonary computerized tomography (BT) are in the form of vascular changes, and parenchymal and pleural changes. Of the vascular changes, the most reliable one is intraluminal filling defect. In the present study, of the vascular changes the most common one was intraluminal filling defect in 53.8% of the patients (n = 21). The most common parenchymal changes is pleural based, wedge shaped parenchymal consolidation. The most common parenchymal finding in the present was pleural effusion with a rate of 33.33%(n = 13). Of the other parenchymal findings, pleural based, wedge shaped consolidation and atelectasis were seen in 20.5% (n = 8) and 12.8% (n = 5) of the patients, respectively.

In conclusion, diagnostic efficiency and importance of Geneva and Wells scoring systems in determining the severity of PTE were investigated in the patients in whom diagnosis of PTE was made using SBTPA and/or V/Q scanning. The final algorithms designed by the diagnostic investigations demonstrated that diagnosis of PTE might be made reliably based on clinical probability, D-dimer and SBTPA results without necessity of invasive methods.