

Management of right heart thrombi associated with acute pulmonary embolism: is there no room for surgical embolectomy?

Akut pulmoner emboli ile ilişkili sağ kalp trombüsünün tedavisi: Cerrahi embolektomi için yer yok mu?

Management of pulmonary embolism complicated with right heart thrombus (PE with RHT) is controversial. The original article published in The Anatolian Journal of Cardiology by Akıllı et al. (1) regarding outcome of acute PE with RHT is very interesting. They analyzed 29 patients with acute PE with RHT among 312 PE patients during 6 years in a single center. Mortality was as high as 34% in study population but it was similar with previous reports. Although mortality of thrombolysis (18%) and heparin (27%) was same as previous report (11% and 29%) in Rose series (2), mortality of pulmonary embolectomy was high. There is a dilemma in thrombolytic therapy as a treatment of PE with RHT. Thrombolytic therapy may recanalize occluded pulmonary arteries, but it may lyse floating thrombus into small fragments causing additional occlusion of patent pulmonary artery and exacerbation of pulmonary hypertension. Anticoagulant therapy using heparin may inhibit formation of secondary thrombus in pulmonary arteries relieving pulmonary hypertension. However, embolization of large floating clot into the major pulmonary artery such as the main pulmonary artery or patent pulmonary arteries may induce the final stroke for patients on the verge of death. Despite small number of patients, most literature showed superiority of thrombolytic therapy. It is due to rapid reduction for volume of thrombus by thrombolytic therapy.

Theoretically, surgical embolectomy appears to be ideal management for critical PE with RHT. However, mortality of pulmonary embolectomy was high in Akıllı's report (1). Mortality in international cooperative study also demonstrated inferiority of surgical embolectomy to thrombolytic therapy for massive PE with RHT (3, 4). On the contrary, team approach between cardiologists and surgeons demonstrated improved outcomes of critical pulmonary embolism (5-7). In massive pulmonary embolism, most patients die within several hours after presentation (8). As Akıllı et al. (1) stated in the text, delay of surgical intervention may result in poor outcome such as right heart failure, multiple organ failure and ischemic brain damage in this situation. The decision of early surgical inter-

vention before deterioration of hemodynamics, management of hemodynamics and respiratory state are keys to save critically ill patients. Multimodality approach using inferior vena cava filter (8), use of extracorporeal lung support (6, 9), catheter directed pulmonary embolectomy and surgical embolectomy may save critical patients (7).

Meta-analysis of 1300 patients who underwent pulmonary embolectomy showed that risk factor for poor outcome was cardiac arrest before pulmonary embolectomy (10). The operative mortality was as high as 59% in patients with preoperative cardiac arrest compared with 29% in patients who did not have preoperative cardiac arrest. Rescue surgical embolectomy led to a better in-hospital course when compared with repeat thrombolysis in patients with massive PE who have not responded to thrombolysis (11). The immediate transfer of patients who have not responded to thrombolysis to cardiac surgery centers could be considered as an alternative option.

Goldhaber (12) pointed out in the recent review paper that a multidisciplinary team with strong cardiac surgery participation should be considered for treatment of patients with massive or submassive PE who need advanced therapy in addition to anticoagulation. Delay often leads to multisystem organ failure that contributes to poor outcomes.

We, as surgeons participating for treatment of PE, believe that there is a room for pulmonary embolectomy to save critically ill patients due to massive PE with/without RHT through team approach. With early notification for cardiac surgeons under cooperation of cardiologist and radiologist, outcome of pulmonary embolectomy for massive/submassive PE with RHT will be improved. Time matters.

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