Abstract: P281

How does pulmonary scintigraphy pattern evolves after pulmonary endarterectomy?

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Introduction: Pulmonary hypertension (PH) is a pathophysiological disorder that may involve multiple clinical conditions and can complicate the majority of cardiovascular and respiratory diseases. Guidelines indicate that a ventilation/perfusion (V/Q) lung scan should be performed in patients with PH to look for chronic thromboembolic pulmonary hypertension (CTEPH). Pulmonary endarterectomy (PEA) is the treatment of choice for CTEPH, but the V/Q scan value post PEA is not established.

Purpose: To verify the evolution of pulmonary perfusion after PEA, as determined by V/Q scan.

Methods: We have reviewed 21 cases submitted to PEA between 2009 and 2017. Thirteen of them (9 females and 4 males; median age = 54.0[P25:48.5;P75:63.0]years) performed a V/Q scan before and after the procedure, this latter for follow up (6 patients) or for suspicion of PE recurrence (7 patients). We analysed the number of perfusion mismatched segments on the V/Q scan (defined as perfusion defects with preserved ventilation), the functional heart class (NYHA) and pulmonary artery systolic pressure (PASP) determined by echocardiography, before and after PEA.

Results: After PEA, there is statistical evidence of a decrease in the number of perfusion mismatch pulmonary segments documented by V/Q scan (p-value=0.001; Wilcoxon test for related samples): median mismatch segments before PEA= 9.5[P25:8.3;P75:11.0] and after PEA=3.5[P25:2.5;P75:4.0](n=13). In 2 patients (1.5%) V/Q scan detected new V/Q mismatch segments (+0.5 and +2.5 segments, respectively). There is also statistical evidence of a decrease in the PASP after PEA (p-value=0.003; Wilcoxon test for related samples): median PASP before PE = 84.0 [P25:78.0;P75:95.0] and after PEA=23.0 [P25:38.0;P75:53.0] (n=11).

All patients (n=13) showed an improvement in functional heart class, of 1 class (n=3), 2 classes (n=8) or 3 classes (n=2), respectively.

Although the functional improvement after PEA, 3 patients needed additional revascularization procedures with angioplasty.

Conclusion: V/Q scan demonstrated a significant pulmonary perfusion improvement after PEA in patients where PASP and functional heart class improved. As far as we know this was the first work to document this pattern.

This diagnostic test easily demonstrated new mismatched perfusion defects in a small percentage of patients. In our opinion these defects must be interpreted carefully as they can result from small peripheral distal embolization during surgery or new thromboembolic episodes.