A comparative study of Pericardial effusion and pleural effusion in atrial fibrillation cryoablation and radiofrequency ablation

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Introduction: To investigate the occurrence and outcome of pericardial effusion and pleural effusion after cryoballoon ablation (CBA) or radiofrequency catheter ablation (RFCA) of atrial fibrillation (AF).

Methods: A total of sixty patients with paroxysmal AF who underwent CBA (n=30) or RFCA (n=30) were enrolled. Troponin I, left atrial pulmonary vein CTA and echocardiography were examined within 24 hours before procedure. Troponin I was also measured 12 hours after procedure. Chest CT and echocardiography were performed within 24 hours after procedure.

Result: The troponin I level was significantly higher in the CBA group than that in the RFCA group (13.48 vs 1.84, P<0.001). The chest CT before and after procedure showed that the CBA group and the RFCA group both had high rate of pericardial effusion (80% vs 93.3%, P>0.05). Chest CT had significantly higher detection rate than that of echocardiography. At the same time, chest CT showed high pleural effusion rate in both groups (73.3% vs 80%, P>0.05). At the maximum depth on chest CT cross-section of pericardial effusion and the pleural effusion on both sides were measured. The RFCA group had larger depths than those in the CBA group.

Conclusion: Both CBA and RFCA caused high rate of pericardial effusion and pleural effusion. The chest CT had significantly higher detection rate than that of echocardiography. RFCA may cause more pericardial effusion and pleural effusion than CBA.