Different Myocardial Biomarker and Inflammatory Reactions after Atrial Fibrillation Ablation among Various Catheter Ablation Devices.

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Introduction: Although myocardial biomarker and inflammatory reactions have been shown with radiofrequency (RF) ablation for atrial fibrillation (AF), the differences in their responses among various ablation devices are not clear.

Methods: This study included 148 paroxysmal AF patients (age: 60.6±9.9 years, female: 47) who underwent pulmonary vein isolation (PVI) by using irrigated RF (n=21), 2nd generation Cryoballoon (CB: n=59), SATAKE Hotballoon (HB: n=37) and 1st generation Laserballoon (LB: n=31) ablation. The myocardial biomarker and inflammatory reactions after PVI were compared among 4 devices by evaluating the ratio of inflammatory biomarker values before and one-day after the procedure.

Result: Baseline inflammatory biomarker values were within normal range, and all PVs were successfully isolated in all patients. The post/pre ratio of CK and AST were the highest in CB and the second highest in HB, whereas post/pre ratio of WBC and CRP were the highest in HB (Figure).

Conclusion: CB and HB demonstrated a higher amount of myocardial injury compared with RF and LB in acute phase, which might suggest that one-shot devices have larger impact of myocardial damage due to large contact after PVI.