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

Masaaki Yokoyama
Seigo Yamashita
Eri Okajima
Hidenori Sato
Hirotsugu Ikewaki
Hirotsuna Oseto
Ryota Isogai
Kenichi Tokutake
Kenichi Yokoyama
Mika Kato
Ryohsuke Narui
Shinichi Tanigawa
Michifumi Tokuda
Seiichiro Matsuo
Satoru Miyanoaga
Kenichi Sugimoto
Michihiro Yoshimura
Teiichi Yamane

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.