The Effect of DC Conversion on Atrial Fibrillation using Decision Tree

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**Introduction:** Atrial fibrillation is known to cause thrombosis and cause systemic embolism. The DC cardioversion was easy to perform, the procedure time was short, and the effect of sinus conversion rate was more than 90%. However, long term follow up data was not surveyed.

**Methods:** From January 2011 to December 2016, 332 patients who underwent dc conversion for cardiac rhythm conversion in patients with atrial fibrillation were enrolled in the cardiac department of Keimyung University Dongsan Medical Center. Recurrence of atrial fibrillation after conversion was classified as recurrent if atrial fibrillation was recorded even once based on the standard electrocardiogram measured at the time of outpatient visit. The type of recurrence was recurrence 3 months before the conversion, but early conversion after 3 months. There was no recurrence before 3 months, but late recurrence after 3 months and continuous recurrence were classified as mixed.

**Result:** There were 90 patients with no recurrence for 2 years, and 242 patients with recurrence. The recurrence rate was 15 cases in the early type, 59 cases in the late type, 168 cases in the mixed type. The mean age of the patients was approximately 60 years. Among the parameters that can be quantitatively measured by echocardiogram, parameters showing differences between normal group and recurrent group were statistically significant difference between left ventricular diastolic diameter, left atrial diameter and left atrial volume index. The more severe the tricuspid regurgitation, the more recurrence of atrial fibrillation. According to decision tree analysis, the most important factor in maintaining rhythm after atrial fibrillation was the size of the sinus atrium, and the prognosis was best when the size of the left atrium was less than 3.74cm. The factors predisposing to the prognosis were the left ventricular volume index and gender, and the next step was the right ventricular diastolic diameter and the length of the mitral regurgitation.

**Conclusion:** The prognosis of DC Conversion is good when the size of the left atrium is 3.74 cm or less, when it is male, and when there is mitral regurgitation.