Efficacy and safety of leadless pacemaker implantation in patients with transcatheter aortic valve implantation

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Introduction: Both transcatheter aortic valve implantation (TAVI) and leadless pacemaker implantation are less invasive and effective for elderly patients with high risk frailty. However, it is not rare that the implant procedure is so hard in TAVI patient because severe aortic valve stenosis patients also have aortic arteriosclerosis which occurs cardiac rotation, tricuspid valve narrowing and tortuous aortic change. We evaluated the efficacy and safety of leadless pacemaker implantation in severe aortic valve stenosis patients who underwent TAVI.

Methods: Total 49 patients received leadless pacemaker implantation between July 2017 and June 2019 in our hospital. Multi slice CT was performed in all patients on the several days later to detect the location of pacemaker. We compared patients’ characteristics and pacemaker data retrospectively.

Result: The demographic characteristics shows an age of 86.2±6.4 years old, 16 males (32.7%), BMI 21.5 ± 3.3, 22 antiplatelet therapy (44.9%) and 42 patients (85.7%) were over 80 years old. There were 29 patients with TAVI (TAVI group) and 20 patients without TAVI (non-TAVI group). There were no significant differences in pacing threshold at the implantation in both groups. The variation of pacemaker data were also no significant differences until discharge. CT shows all of the leadless pacemakers located in RV septum or anterior interventricular attachment. There were 3 major complications. One patient developed pericardial effusion that required drainage and one patient had intraabdominal hemorrhage due to iliac vein injury that was successfully stopped by compression externally in TAVI group. There was also one cardiac tamponade case which was recovered by pericardiocentesis.

Conclusion: Leadless pacemaker implantation seemed to be safe and usefulness in elderly patients who underwent TAVI.