Relationship Between Membranous Septal Length and the Risk of Cardiac Conduction Disturbances in Patients Who Have Undergone Transcatheter Aortic Valve Replacement

Tomonori Miki
Keiraro Senoo
Takashi Okura
Hirokazu Shiraishi
Takeshi Shirayama
Satoaki Matoba

**Introduction:** Complication rates of transcatheter aortic valve replacement (TAVR) have decreased. However, new-onset conduction disturbances (CDs) are still common and the incidence of CDs is said to be higher for patients with a self-expandable valve (SEV) than for those with a balloon-expandable valve (BEV). We examined the occurrence of CDs and related factors for both types of valves.

**Methods:** Among 190 consecutive patients who underwent TAVR, 127 (mean age, 85.5 ± 5.4 years; 98 females; 56 SEVs) were included. Cardiac CDs, defined as new-onset complete left bundle-branch block or the need for permanent pacemaker implantation, were assessed at the time of discharge.

**Result:** Thirty patients had new-onset CDs after the procedure, and the incidence of CDs tended to be higher in patients with a SEV (28.5% for SEV and 19.7% for BEV, p=0.24). The cutoff value of the area under the curve (AUC) for the membranous septum (MS) length was not different between SEV group (cutoff value, 6.3 mm; sensitivity, 0.81; specificity, 0.62; P<0.001) and BEV group (cutoff value, 6.4 mm; sensitivity, 0.92; specificity, 0.63; P<0.001). A multivariate analysis showed that the incidence of CDs was associated with MS length as a pre-procedure predictor (odds ratio [OR], 0.41; 95% confidence interval [CI], 0.27–0.63; p<0.001) and with ΔMSID (defined as the difference between MS length and implantation depth) as a post-procedure predictor (OR, 0.46; 95%CI, 0.33–0.63; p<0.001), but it was not related to the type of valve (OR, 0.85; 95%CI, 0.18–4.1, p=0.83).

**Conclusion:** MS length is a useful predictive factor for CDs, regardless of the type of valve. Pre-procedural computed tomography assessment of MS anatomy could potentially reduce the risk of CDs.