

Abstract

Background: Pulmonary vein stenosis is a condition with challenging treatment and leads to severe cardiac failure and pulmonary hypertension. Despite aggressive surgical or catheter-based intervention, the prognosis of pulmonary vein stenosis is unsatisfactory. This study aimed to assess the prognosis and to establish appropriate treatment strategies.

Methods: We retrospectively reviewed endovascular treatments for pulmonary vein stenosis (2001–2017) from the clinical database at the Okayama University Hospital.

Results: A total of 24 patients underwent pulmonary vein stenosis associated with total anomalous pulmonary venous connection and 7 patients underwent isolated congenital pulmonary vein stenosis. In total, 53 stenotic pulmonary veins were subjected to endovascular treatments; 40 of them were stented by hybrid (29) and percutaneous procedures (11) (bare-metal stent, n= 34; drug-eluting stent, n= 9). Stent size of hybrid stenting was larger than percutaneous stenting. Median follow-up duration from the onset of PVS was 24 months (4–134 months); Survival rate was 71% and 49% at 1 and 5 years, respectively. There was no statistically significant difference between stent placement and survival; however, patients who underwent bare-metal stent implantation had statistically better survival than those who underwent

drug-eluting stent implantation or balloon angioplasty. Early onset of stenosis, timing of stenting, and small vessel diameter of pulmonary vein before stenting were considered as risk factors for in-stent restenosis. Freedom from re-intervention were 50% and 26% at 1 and 2 years.

Conclusions: To improve survival and stent patency, implantation of large stent is important. However, re-intervention after stenting is also significant to obtain good outcome.