Radiofrequency Catheter Ablation – A Novel Concept For The Treatment of Hypertrophic Obstructive Cardiomyopathy

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Introduction: The subaortic obstruction observed in hypertrophic obstructive cardiomyopathy (HOCM) can be relieved by either surgical myectomy, alcohol septum ablation or by pharmacological treatment. Reduction of septal hypertrophy may also be achieved through radiofrequency catheter ablation (RFCA), which is a novel strategy in the management of HOCM. We report our preliminary experience using this technique in children and adolescents.

Patients: Four patients aged 2 to 16 years (weight 14.6 to 90 kg) with HOCM and left ventricular outflow tract (LVOT) obstruction were treated. One patient had previously undergone surgical myectomy. All patients were on ß-blocker medication. The median subaortic pullback gradient ranged from 59 to 100 mmHg.

Method: RFCA in our patients was performed at the University Hospital of Cologne. Imaging of the LVOT was performed at the beginning of the procedure by left ventricular angiography. Subsequently, the most pronounced septum prominence was localized and, using 7F or 8F ablation catheters, radiofrequency was applied at a power setting of 60 Watts over 20 to 120 seconds. Transesophageal echocardiography was used to monitor acute pressure gradient changes during the procedure and to exclude pericardial effusion.

Results: RFCA was effective in all patients. No complications were reported. Pressure gradients measured invasively decreased by 25 to 55 mmHg. Follow-up visits showed further regression of pressure gradients by another 10 to 30 mmHg. Left bundle branch block did not occur in any patient.

Conclusion: RFCA is a novel therapeutic strategy in the management of HOCM and may be used as an alternative to surgical myectomy. In addition to acute gradient reduction, pressure relief of the left ventricle is observed progressively within 6 to 12 months following the procedure, which is assumed to be caused by myocardial involution of the treated region.