

經導管先天性心臟病修補術

Transcatheter repair in patients with congenital heart disease

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The repair of congenital heart disease (CHD) has been transformed over the past decade by advances in cardiac catheterization. A minimally invasive approach to diagnosing and treating these anomalies is associated with less risk and easier recovery for patients of all ages. Catheter-based interventions are now considered the standard of care in treating newborns, children and adults with a variety of types of CHD.

Various new techniques or devices such as patent ductus arteriosus, atrial septal defect, ventricular septal defect, or some vascular abnormalities such as coronary arteriovenous fistula, complex technical challenges of paravalvular leak closure, or pulmonary valve implantation are now going to be popular. However, to perform safely and achieve good procedure success, real time imaging plays an important role in interventional procedures. Current imaging techniques such as three-dimensional (3D) rotational angiography, multi-modal image fusion, 3D printing, and holographic imaging have the potential to enhance our understanding of complex congenital heart lesions for diagnostic or interventional purposes. While fluoroscopy and standard angiography remain procedural cornerstones, improved equipment design has allowed for effective radiation exposure reduction strategies. Innovations in device design and implantation techniques have enabled the application of percutaneous therapies in a wider range of patients, especially those with prohibitive surgical risk.

In brief, current technologies increase application of percutaneous therapies to a broad range of patients. However, it is important to remember that long-term outcomes for many such novel interventions are lacking, and rigorous prospective studies and data surveillance are required to determine safety and efficacy profiles before these become standard of care. Future innovations and growing experience in this field, in addition to increased collaboration between surgeons and interventionists, will undoubtedly continue to expand transcatheter options in the management of congenital heart disease, further improving the quality of life for the child and adult with CHD.