Abstract: Half-time review seminar, May 11, 2021
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Surgical treatment of atrioventricular septal defect

Background and aims
Atrioventricular septal defect (AVSD) is a congenital heart malformation accounting for 7.4% of all cardiac malformations. It is anatomically divided into complete, intermediate, and partial types. There is a strong association between AVSD and trisomy 21. If left untreated the malformation will lead to progressive heart failure, cyanosis, and premature death.

Since 1993 our standard policy has been primary surgical correction avoiding palliative interventions. Preoperative evaluation of the common atrioventricular valve relies on echocardiography. Incomplete visualization of valve anatomy may affect valve repair. 2D and 3D echocardiography and their accuracy in showing AV-valve anatomy using intraoperative assessment as reference has not been described. The long-term outcomes after repair of AVSD, and the importance of surgical timing and associated lesions is still not fully understood.

Methods and results
Paper I; In a prospective study we compare accuracy and reasons for disagreement of 2D and 3D echocardiography using intraoperative surgical assessment as reference. 20 children were enrolled prior to AVSD surgery. In all, 520 valve features were evaluated with 2D and 3D echocardiography and by the surgeon. 2D and 3D echocardiography showed 79% vs 83% agreement with the surgical description. We show that in 48% of cases where 2D was accurate, 3D was inaccurate and vice versa supporting combining the two techniques in clinical practice.

Paper II; In this retrospective study, 304 patients, who underwent surgical correction of complete AVSD in 1993 to 2018, were evaluated. Long-term outcome of early repair in young infants (< 3 months) was compared to elective repair at 3 to 6 months of age and independent risk-factors for mortality and reoperation were established. We could show excellent long-term survival and a low need of reoperation even young infants.

In study III, we will investigate the impact of concomitant complex lesions in non-trisomy 21 patients with complete AVSD on long-term survival and need for reoperation.

In study IV we plan to investigate the long-term outcomes for 477 patients who underwent surgical correction of all types of AVSD during 1993 to 2019 with a special focus on long-term outcome after re-repair.

Significance
Identifying subgroups of AVSD patients still being at risk of impaired outcome and establishing optimal surgical treatment and timing is essential for the future of these patients.
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