Surgical results for mitral valve replacement in children.
The last technical option
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INTRODUCTION
Mitral valve replacement (MVR) is the last option after a failed valvuloplasty for children with a severe mitral lesion. We present our surgical results, follow-up and a risk factors for mortality analysis.

MATERIAL & METHODS
Retrospective study. 23 mechanical MVR in 21 patients < 18 years old, operated during 2002 - 2014

RESULTS
Age at MVR 67  58 months (7-200); women 17 (74%); weight: 19  16 Kg (5-65).
Surgical indication:
Mitral stenosis (MS) 7 (30,5%), mitral regurgitation (MR) 10 (43,5%), MS-MR 6 (26%).
Previous surgery:
Operations before MVR in 15(65%) cases. Age at previous surgery: 19 23months (0,1-79). Number of previous surgery: 1,3 1 (0-4). All patients had one or more mitral valvuloplasty, before or during MVR time.
Preoperative conditions:
NYHA preoperative status: III-IV 91%.
Preoperative echocardiography:
Peak transmitial gradient 19,7 12 mmHg (3-40); medium transmitial gradient 11,6 9 mmHg (1-30).
MR: no 3 (13%); mild 2 (9%), moderate 4 (17%), severe 14 (61%).
Mitral anulus: 23 (7-39) mm. Leaflet anomalies: 9(39%). Single papillary muscle: 1(4%).
Concomitant moderate or severe pulmonary hypertension in 17 (74%).
Left ventricle ejection fraction (LVEF): normal 20 (87%), dysfunction 3 (13%).
MVR surgery:
Surgical approach to mitral valve: transeptal 7 (30%), left atriotomy 14 (61%), superior-septal 2 (9%).
Prosthesis size: 20 4 (16-31). Conservation of papillary muscles: 7(30%). Supra-annular implantation: 5(22%).
Cardiopulmonary by-pass time: 159 45 minutes (90-237), aortic clamp time: 113 32 minutes (65-181).

Inhospital results:
Mortality 2 (8%) Intubation: 92 176 hours (1-600); intensive care unit 11 12 days(2–46) and hospital stay 23 18 days (7-69).
Morbidity in 14(61%), most frequently an additional pacemaker: 3 (15%).
Follow-up:
31 39 months (0,5-176). Late mortality: 4 (20%). Reoperation in 2 (10%), because of patient overgrowth/mismatch and prosthesis thrombosis. Actual NYHA status: I-II 87%.
Postoperative echocardiography:
Peak transmitial gradient 21 12 mmHg (8-51), medium transmitial gradient 9 6 mmHg (3-25).
All patients have no MR and good LVEF. Moderate or severe pulmonary hypertension is present in 45%.
Whereas total mortality (6 patients) happened mostly in the youngest patients, p value for patient’s weight, age and prosthesis size were not significant for mortality.

CONCLUSIONS:
• MVR is the last option, even in small annulus, with inhospital mortality rate (8%) similar to expected mortality in RACHS-1 risk category, but higher (20%) in follow-up, due to anticoagulation associated morbidity.
• After MVR surgery, NYHA status and pulmonary hypertension improve, MR disappears in all, but re-stenosis is still a matter of concern.
• Neither patient s weight, age nor prosthesis size were significant (p: > 0,05) for mortality.

The authors have no conflict of interest