

Sildenafil in the postoperative course after surgery in children with CHD

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Pulmonary hypertension (PHT) is one main cause of postoperative morbidity and mortality after repair of CHD. Although efficacy of iNO is well-established, the utilization of sildenafil is not yet clearly defined. The aim of this study was to assess efficacy of sildenafil after CHD repair in children. Methods : Retrospective analysis of patients who received sildenafil in postoperative course after CHD repair, from 2005 to 2012. Duration of mechanical ventilation, CICU and in-hospital stay, pulmonary pressure and overall outcome were assessed. Patients were divided into group I (sildenafil onset <H24) and group II (> H24).

Results : 50 patients were included: 30 in group I and 20 in II. Mean age was 11.5mos, (med3.7mos), mean weight 4.4kg. CHD included : 20VSD, 2VSD+coarctation, 9AVSD, 3truncus arteriosus, 2TGV, 3TOF, 9abnormal pulmonary venous return, 3miscellaneous. Mechanical ventilation duration was 8.4d, CICU stay 12.9d, hospital stay 21.6d. Bypass time was 100.8±45mn, aortic clamp time 60.2±22mn. InhaledNO was administered within 5mn post-bypass, at 11.3±5.5ppm and duration of 4±3 days. Sildenafil dose was 0.25-2mg/kg/4h, 1stdose was 0.67mg/kg/4h. Mean sildenafil dose was 1.16mg/kg/4h at the time of iNO withdrawal. Duration of sildenafil was 22.4±14.6days. Preoperative systolic pulmonary pressure(PAPs) to systolic aortic pressure(PAs) ratio was 0.94±0.1. Preoperative PAPs decreased from 72 to 36.5mmhg at iNO cessation, PAPs/PAs from 0.94 to 0.43 and PAPmean/PAsmean ratio from 0.8 to 0.46. PaO₂/FiO₂ ratio increased from 121.4 at end of bypass to 269 at iNO cessation. Duration of mechanical ventilation was 6.2d vs 11.6d(p= 0.04), CICU stay 9.4d vs 18d (p= 0.005), in-hospital stay 16d vs 30d (p= 0.001), respectively in groups I and II. Duration of iNO administration was shorter in group I (3.3d) than in II (5d), p=0.05. Preoperative PAPs did not differ between the 2 groups. No significant side effect occurred. Overall mortality was 4% and 4 patients needed long term sildenafil therapy. At latest evaluation, 38% were in NYHA class I, 40% in NYHA II and 22 in NYHA III.

Conclusion : Sildenafil is safe and reliable in the postoperative course after surgery for CHD in children and efficacy is optimal if administered < H24 after bypass.