

Subsequent nitric oxide with inhaled iloprost versus inhaled iloprost alone in pulmonary hypertension following cardiac surgery in children with congenital heart disease

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Background:One of problems sometimes encountered following pediatric cardiac surgery is Pulmonary Hypertension that associated with significant mortality and morbidity. It is desirable to treat the condition and return haemodynamics to normal as quickly as possible, and enable a prompt removal of ventilator support. In our centre, the management of Pulmonary Hypertension consist of deep analgesia and sedation, controlled ventilation and inhaled Nitrous Oxyde (iNO) continued with inhaled iloprost.

Aim:The primary end-point of this study was to compare the efficacy of inhaled nitric oxide (NO) plus inhaled iloprost versus inhaled iloprost alone in reducing pulmonary artery pressure after cardiac corrective surgery in children with congenital heart disease (CHD) and pulmonary hypertension. The secondary end-point was to assess the safety of inhaled iloprost and inhaled NO.

Method: A prospective, randomized, open label study was conducted in Harapan Kita National Heart and Cardiovascular Center, Jakarta, between March 2008 and March 2009. Children with CHD and secondary pulmonary hypertension were recruited. After surgery, patients were randomized to receive inhaled NO+iloprost or inhaled iloprost alone. Mean pulmonary artery pressure (mPAP), mean systemic arterial pressure (MAP), and the ratio of mPAP/MAP were measure at baseline, during treatment, and at the end of the study.

Results: Thirteen children were eligible for this study. Treatment with inhaled NO plus iloprost and iloprost alone were equally effective in reducing mPAP. The mPAP was lower in inhaled NO+iloprost group than iloprost alone, but the difference was not statistically significant (23.0 ± 7.7 vs. 30.4 ± 15.9 mmHg; $p=0.359$). An adverse event of hypotension occurs in one patient in the iloprost alone group.

Conclusion: Inhaled iloprost alone or inhaled nitric oxide plus iloprost were equally effective in lowering pulmonary artery pressure in children underwent corrective cardiac surgery for CHD. Inhaled iloprost alone is more preferable due to its simpler administration.