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Causes of Death After the Modified Norwood Procedure: A Study of 122 Postmortem Cases

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Abstract

Background. Although the results of the modified Norwood procedure as palliation for the hypoplastic left heart syndrome have improved considerably, in-hospital mortality remains high (28% to 46%).

Methods. To establish the causes of death and consider their therapeutic applications, we reviewed our pathology experience from 1980 to 1995, inclusive, regarding 122 patients who died after undergoing the Norwood procedure.

Results. The most important causes of death were found to be impairment of coronary perfusion (33 patients, 27%), excessive pulmonary blood flow (23 patients, 19%), obstruction of pulmonary arterial blood flow (21 patients, 17%), neo-aortic obstruction (17 patients, 14%), right ventricular failure (16 patients, 13%), bleeding (9 patients, 7%).

infection (6 patients, 5%), tricuspid or common atrioventricular valve dysfunction (6 patients, 5%), sudden death from presumed arrhythmias (6 patients, 5%), and necrotizing enterocolitis (3 patients, 3%). In 26 patients (21%), more than one factor appeared responsible for death.

Conclusions. The leading causes of death after the Norwood procedure were found to be largely correctable surgical technical problems associated with perfusion of the lungs (36%), of the myocardium (27%), and of the systemic organs (14%).



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