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 FULL-TEXT ARTICLE

Recovery from Fontan circulation failure by application of continuous negative extrathoracic pressure.

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A 2-year-old girl developed lethal circulatory failure, general edema, and hepatic dysfunction in an acute phase after total cavopulmonary connection, a Fontan-type operation. Application of continuous negative extrathoracic pressure (CNEP) with a cuirass ventilator at -4 cmH₂O under spontaneous respiration dramatically improved hemodynamics, with systolic arterial pressure increasing from 82 mmHg to 90 mmHg, and central venous pressure decreasing from 15 mmHg to 13 mmHg; also, urine output increased, from 1.6 ml.kg⁻¹.h⁻¹ to 6.4 ml.kg⁻¹.h⁻¹. Improvements in hepatic function and fluid retention (reduction of pleural fluid and ascites) were also observed. The patient was successfully weaned from CNEP after 5 days. CNEP is an easily applicable, noninvasive tool to reduce pulmonary impedance, and is specifically useful to improve hemodynamics in patients after a Fontan-type operation. Our result suggests that CNEP may represent a first-line option to save patients from critical circulatory failure after a Fontan-type operation.

PMID: 17458662 [PubMed - in process]

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