

IS IT A CARDIAC MIRACLE OR IS IT BCV?

SIGNIFICANT CARDIAC OUTPUT INCREASES IN POST FONTAN PHYSIOLOGY FOR BOTH ACUTE AND CHRONIC PATIENTS.

A brief period of NPV increased pulmonary blood flow from 2.4 to 3.5 L x min(-1) x /m(-2), with a mean increase of 42%. Pulmonary blood flow continued to improve, with a total increase of 54% after an extended period of NPV. Values fell toward baseline after reinstitution of IPPV. Heart rate was unchanged during NPV, and the improvement in pulmonary blood flow was achieved by an increase in stroke volume from 25 mL/m2 to 37 mL/m2.

Shekerdeman L.S., Bush A., Shore D.F., Lincoln C., and Redington A.N.

**Cardiopulmonary Interactions after Fontan Operations:
Augmentation of Cardiac Output Using Negative
Pressure Ventilation**

Circulation 1997;96: 3934-3942

<https://www.ncbi.nlm.nih.gov/pubmed/9403618>



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CARDIOPULMONARY SUPPORT

Through improvement of the stroke volume alone, BCV brought about a marked increase in the pulmonary blood flow and, hence, cardiac output of Fontan patients. An improvement in cardiac output of this order, and by this mechanism, is currently unmatched by any therapeutic alternatives!



EFFECTIVE TREATMENT OPTION FOR PLE PATIENTS

A 16-year-old male presented with hypoplastic left heart syndrome who developed protein-losing enteropathy (PLE) and plastic bronchitis (PB) after a Fontan operation.

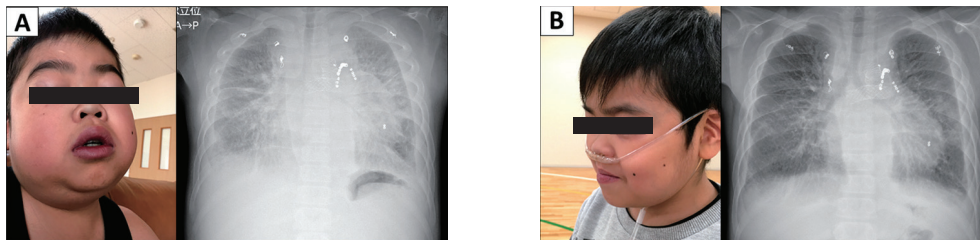
His chest radiography shows cardiomegaly (enlarged heart), pulmonary congestion, pleural thickening and effusion.

He could not find relief using standard medical therapies, such as albumin infusion, unfractionated heparin, and high-dose anti-aldosterone therapy.

That is when biphasic cuirass ventilation was initiated.

The use of BCV™ led to a bronchial cast to be expectorated and promptly resolved the PB. After starting BCV™, PLE symptoms significantly improved, and stroke volume increased from 26 ± 1.4 to 39 ± 4.0 mL.

The authors report that BCV™ may be an effective treatment for PLE patients with failing Fontan.



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