

Abstract

The technology relates to a surgically implantable self-driven blood pump for use in staged partial or total cavopulmonary connection. Total cavopulmonary connection is the main surgical intervention used to treat children born with univentricular congenital heart defects. The technology comprises an aortic turbine that uses some systemic blood from the left ventricle as an energy source and a venous pump that is coupled magnetically or mechanically to said turbine.

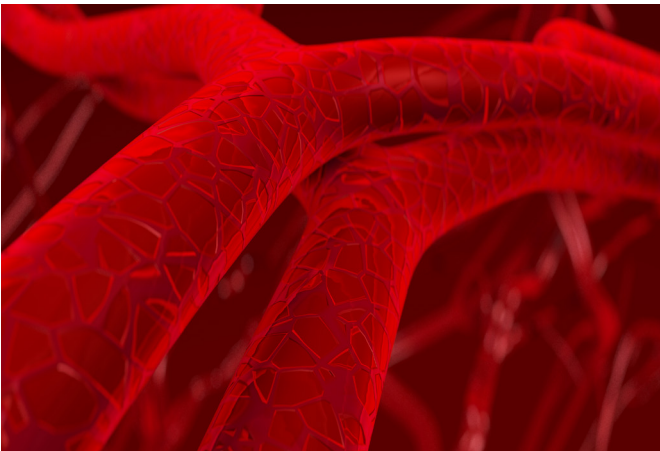


Problem solved with the technology

Need of better solutions for the patients with univentricular congenital heart diseases, such as tricuspid or mitral atresia, hypoplastic left heart syndrome or hypoplastic right heart syndrome or complex congenital heart diseases.

The present invention discloses an implantable self-driven pump without need of an external power source. The invention makes use of an aortic turbine that utilizes some systemic blood from the left ventricle as a source of rotation to drive the venous pump placed at the TCPC intersection in order to alleviate symptoms of failing Fontan circulation such as systemic venous hypertension, pulmonary arterial hypotension and complications relating to these symptoms.

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Potential Application

Congenital heart defect surgeries

A series of palliative cardiovascular surgical operations

The present invention relates to an implantable self-driven pump for use as a cavopulmonary assist device.

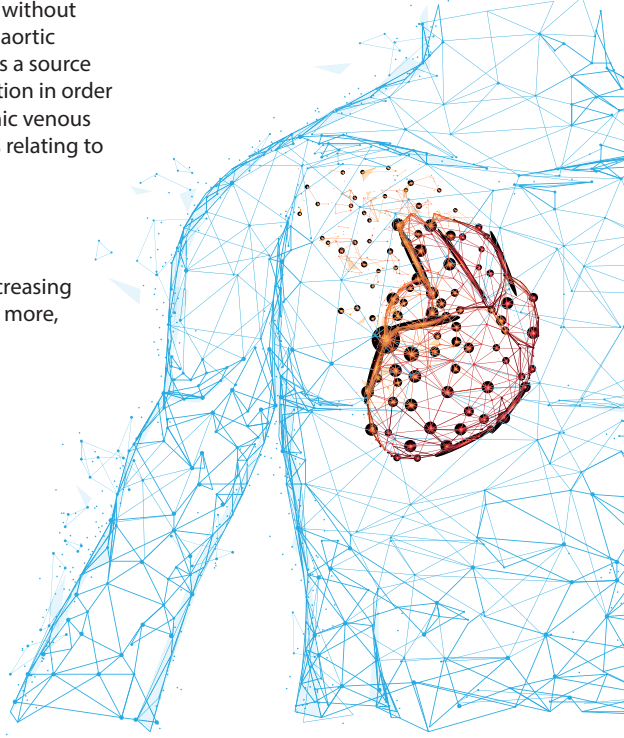
Cavopulmonary assist device can be synced with ECG or respiration or can introduce tailored waveforms based on the patient-specific physiology. It can also be synced with the diaphragm movement or the associated muscle EMG signal.

Customer Benefits

The present invention discloses an implantable self-driven pump without need of an external power source. The invention makes use of an aortic turbine that utilizes some systemic blood from the left ventricle as a source of rotation to drive the venous pump placed at the TCPC intersection in order to alleviate symptoms of failing Fontan circulation such as systemic venous hypertension, pulmonary arterial hypotension and complications relating to these symptoms.

Market Trends

The number of patients with congenital heart disease (CHD) is increasing worldwide and most of them will require cardiac surgery, once or more, during their lifetime.



Additional Technical Information

Patent Info: WO2017217946 A1

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Keywords: Ventricle assist device, Blood pump, Fontan circulation, Cavopulmonary connection

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