

Sun. Jul 11, 2021

Track1

JSPCCS-AHA Joint Session

JSPCCS-AHA Joint Session (III-AHAJS)

Artificial heart and heart transplantation

Chair: Akira Shiose (Kyushu University, Japan)

Chair: Anne Dipchand (Department of Paediatrics, University
of Toronto, Canada)

9:00 AM - 10:30 AM Track1 (現地会場)

[III-AHAJS-1] Current status and future aspects of
therapeutic strategies for children with
end-stage cardiac failure in Japan

Norihide Fukushima (Department of
Transplant Medicine, National Cerebral and
Cardiovascular Center, Japan)

[III-AHAJS-2] The use of Berlin Heart EXCOR as a
bridge for transplantation in Japan
Yasutaka Hirata (Department of Cardiac
Surgery, The University of Tokyo Hospital,
Japan)

[III-AHAJS-3] Mechanical circulatory support in children
○Rachel Vanderlaan (Hospital for Sick
Children, University of Toronto, Canada)

[III-AHAJS-4] Bridging children to transplant with VAD
support
○Scott Auerbach (Children's Hospital
Colorado, USA)

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[III-AHAJS-1] Current status and future aspects of therapeutic strategies for children with end-stage cardiac failure in Japan

Norihide Fukushima (Department of Transplant Medicine, National Cerebral and Cardiovascular Center, Japan)

Keywords: 重症心不全, 心臓移植, 補助人工心臓

1968年の和田心臓移植後、日本国民の移植医療への不信感が強く、30年近く心臓移植の道は閉ざされていたが、1997年臓器移植法が施行され、小児の重症心不全患者についても門戸が開いたと思われた。しかし、法律が生前の書面による意思表示を必須としたため、15歳未満の脳死臓器提供が実施できず、小さな小児は海外渡航移植しか生きる道がなかった。1999年2月に成人心臓移植が再開し、2000年3月には成人女性からの10歳未満の男児への心臓移植が実施されたが、以後ほとんど小児心臓移植は行われなかった。当学会移植委員会が中心となり、重症心不全患者の実態調査を行い、法改正の活動した結果、2010年7月に改正臓器移植法が施行された。その結果、小児の心臓移植件数が徐々に増加し、2019年には国内での移植件数が、海外渡航移植件数を上回った。小児重症心不全患者のもう一つ治療戦略として左室補助人工心臓（VAD）があるが、従来は体外設置型のニプロ VADしかなかった。2015年に EXCOR Pediatricsが保険収載され、乳幼児の重症心不全患者の予後が著しく改善した。さらに2018年には HVADが、2019年に HeartMate3が保険償還されたことにより、体格の大きな小児例は、体外設置型 VADではなく、植込み型 VADを装着できるようになり、徐々にではあるが、在宅管理される小児例、さらには通学できる小児例が増加してきている。本年5月に HeartMate3の Destination Therapyが保険収載されたので、今後心臓移植の適応とならない、悪性腫瘍根治後5年以内、腎機能障害などの合併症のある小児重症心不全患者に対しても植込み型 VADを装着できるようになり、さらに多くの小児重症心不全患者を救命できるようになった。以上の歴史を踏まえながら、小児重症心不全に対する治療戦略の現状と展望について述べる。

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[III-AHAJS-2] The use of Berlin Heart EXCOR as a bridge for transplantation in Japan

Yasutaka Hirata (Department of Cardiac Surgery, The University of Tokyo Hospital, Japan)

Keywords: heart transplantation, mechanical cardiac support, EXCOR

Since its approval in 2013, the use of EXCOR has increased throughout Japan, with 85 implantations (83 patients) performed to date. Of the 83 patients, 33 patients (39.8%) underwent heart transplantation, 17 patients (20.5%) recovered and explanted, 8 patients (9.6%) died, and 24 patients are on support. The biggest problem in the treatment of severe pediatric heart failure in Japan is the small number of donors for transplantation and the very long time required for the use of mechanical supports. The average time to heart transplant with EXCOR was 391 days and the average support time for the patients who are still on EXCOR is 458 days. These are much longer than that of the United States where average waiting time is a few months. Despite the long support time, the mortality and complication rates are relatively low. In our experience at the Tokyo University Hospital, the most difficult aspect of the long-term management of EXCOR has been the control of infection at the exit site of the cannulas. Infection around the cannula caused deterioration of the general condition and exacerbation of the thrombotic

tendency, which made it difficult to control coagulation; conversely, in the absence of infection, coagulation could be managed safely for a relatively long period of time. In addition, right heart failure and aortic regurgitation may become a problem during prolonged management. In the midst of a donor shortage, long-term management is required at each facility, but fundamentally, the number of donors is expected to increase in the future.

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