

# Heart Transplantation or Mechanical Circulatory Support —Problems of Pediatric Patients with Terminal Stage Cardiac Failure in Japan—

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## Introduction

Although severe heart failure is less common among the pediatric population than in adults, many pediatric patients develop terminal stage cardiac failure.

For such patients, heart transplantation is the only hope of survival. However, heart transplantation in children is illegal in Japan and therefore impossible to perform. At present, only children from families with enough financial resources or who have successfully raised enough funds can travel overseas to undergo transplantation.<sup>1)</sup>

Traveling overseas is difficult for patients with terminal heart failure who require heart transplantation; some patients cannot travel overseas without mechanical circulatory support.<sup>2)</sup> However, in Japan, no pump is currently available for use in children over an extended period of time. Consequently, a pump that has been designed for adults is used in children; however, use of this has been complicated by a high rate of thromboembolism.<sup>3)</sup>

Due to the 5% rule and other measures in overseas countries, there is a movement to restrict the number of recipients from Japan. In other words, the chance of receiving transplantation is decreasing.<sup>4)</sup>

Even if the laws in Japan changed to allow transplantation in children younger than 15 years of age, since only about three heart transplantations are performed each year by harvesting hearts from brain dead adults whose sizes of the heart do not markedly differ, how long would children, whose heart sizes varies considerably, have to wait?

The underlying problem is with the medical system in Japan and the Japanese notion of medical care. In Japan, medical care is provided without any discrimination, and

the Japanese expect the best medical care at no financial expense under the national health insurance system. However, when undergoing heart transplantation overseas, people have to raise funds of over 100 million yen to pay the overseas institution. In such a system, patient selection is clearly based on ability to pay. This totally opposes and contradicts the current Japanese medical system.

It has been stated for some time that prosthetic organs are more appropriate than transplantation in the light of cultural considerations in Japan.

Although heart transplantation is now available for adults, the necessity for assisted circulation is even higher because the waiting period is so long.

Recently, in some institutions, due to an increase in the number of patients who are waiting for heart transplantation with mechanical assist, management techniques and countermeasures for heart failure have improved.

Therefore, even in patients in whom heart transplantation appears to be the ideal therapy, technical advances in assist devices, in particular those designed for children, are most urgent. With such advances in mechanical circulatory support, cardiac function could recover enough to increase the proportion of patients who do not require transplantation (bridge to recovery).

## References

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