

Editorial

The Fundamental Challenges in Organ Transplantation

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Organ transplantation is a unique form of therapy for organ failure. The results are overall extremely good, saving the lives of a large cohort of patients that would otherwise die or be left with reduced life expectancy and a poor quality of life. Yet, the success of transplantation creates a problem that is increasingly difficult to manage, - the shortage of organ grafts available for transplantation. Simultaneously, the average age of deceased donors increases in most western countries, and a high prevalence of life-style associated diseases like obesity, diabetes and hypertension impacts organ quality. Various strategies have been applied to cope with the ever-increasing demand for organs. Extended criteria grafts can in many instances be used successfully if transplanted to properly selected recipients, but are associated with an increased risk of short and long-term graft loss due to poor function. Donation after circulatory death as an adjunct to donation after brain death have been successfully introduced in many countries and currently contributes to a significant part of all organs transplanted in Europe and the US [1]. Both strategies have raised the need for close monitoring of organ function and therapeutic measures to improve organ quality. Machine perfusion of organs could be a way to both reduce the negative impact of ischemia [2, 3] but moreover as an innovative strategy for reducing the ischemia-reperfusion injury at revascularization [4]. Ultimately the concept of using ex-vivo perfusion as a way to achieve reconditioning of organs in order to convert “non-transplantable organs” into acceptable grafts has emerged. The approach was pioneered in Lungs by Steen and coworkers in Sweden in 2007 [5]. Recently, a similar approach have been reported in liver transplantation [6, 7]. The

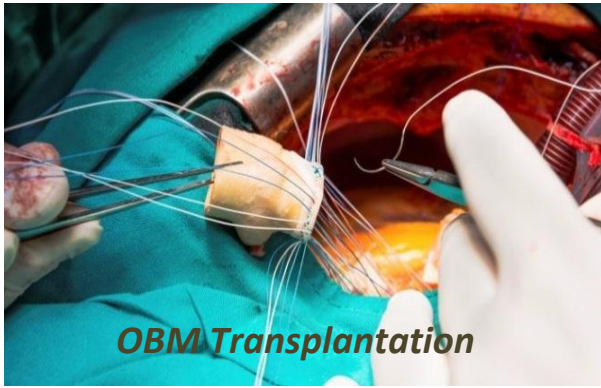


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significant progress seen in organ preservation and possible reconditioning over the recent years has even made heart transplantation after circulatory death possible [8]. The concerted efforts of the transplant community to find new innovative strategies to alleviate organ shortage is a result of continuous and systematic work, and clearly demonstrates the importance of scientific medicine in improving the treatment and care for our patients.

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