未经移植培训的心脏病学专家的心脏移植须知

〔英〕/Allen J… //American Heart Journal 1995, 129:578－589

等待心脏移植和做过心脏移植的病人日见增多，说明了治疗晚期心脏病，心脏移植已广泛地被接受为选择疗法.

心脏移植手术增多，手术效果也同时增高.移植后1年存活率近80%，10年存活率为56%.由于供体不足，心脏移植手术的数量未见增加，而等待手术的病人则日见增多.等待越久，病情越复杂.同时，充血性心衰的发生率增加，和使用环胞素后使心脏移植的生存改善等因素，使未经心脏移植培训的心脏病专家都参加了此项手术的术前和术后处理.本文就此着重谈这种手术的一些特点.

心脏移植只能用于不可逆的心脏病，因此，必须着重考虑几个问题.充血性心衰中有30%的病例有舒张期功能障碍，要注意和收缩期心功能障碍区分开来.两者的内科治疗有实质上的不同，治疗不当会误为心衰不能控制.应该考虑到缺血性心肌病在血管再形成时，左室功能和功能级别有改善可能.现在都认为冬眠状态的还有潜在活力的心肌在血管再形成时，可以恢复功能.某些非缺血性心肌病，例如滥用酒精，围产期心脏病、持久性心动过速或病毒性心肌炎的少数病例，能自发性改善.非缺血性心肌病能否自发性恢复收缩期功能，尚难预测.当发病<3个月或血流动力学代偿不严重时预后可能较好，常于出现症状后6～8个月内功能恢复.有些病人用β肾上腺素能受体阻滞剂治疗后有实质性改善.因此，最近认为所有要做心脏移植的病人都应该试用.

心脏移植中心对右心压力测定的评价很重要.用于评价目前的内科治疗效果，估计有无肺血管阻力增加及判断预后.肺血管阻力的增加，肯定会增加死于右心衰竭的危险.受心者的肺血管阻力增加，加重原来已

Cardiac transplantation for the cardiologist not trained in transplantation

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The increased number of patients waiting for and undergoing cardiac transplantation is evidence of the widespread acceptance of this procedure as a therapeutic option for end－stage cardiac disease. This growth has paralleled improved results with cardiac transplantation; transplant recipients have an approxinately 80% survival at 1 year, with survival extending to 56% at 10 year.. Whereas the number of patients undergoing transplantation has plateaued because of the limited availability of donor organs. The number of patients on the waiting just has steadily increased, such that waiting times are increased and such that the condition of patients ultimately undergoing transplantation is increasingly conplex. These changes and the increasing incidence of congestive heart failure and imporved survival after transplantation in the postcyclosporine era make it increasingly likely that cardiologists not specificlly trained in this subspecialty of cardiology will participate in the preand posttransplantation care of these patients.This review focuses on selected aspects of the treatment of patients being examined for and under going cardiac transplantation.

Cardiac transplantation should be considered only when the cardiac disease is deemed irreversible. In this regard several important considerations should be raised. Congestive heart failure can result fromisolated diastolic dysfunction in ≤30% of cases of this type of heart failure. It is important to distinguish this condition from systolic dysfunction because medical therapy is substantially different and because symptoms of congestive heart failure may be considered incorrectly to be uncontrolled unless appropriate therapy is applied. In ischemic cardiomyopathies the potential for improvement in left ventricular function and functional class after revascularization should be considered. It is now well recognized that hibernating and therefore potentially viable myocardium can recover function after revascularization. Some nonischemic cardiomyopathies such as those in alcohol abuse, aperipartum state, persistent tachyarrhythmia, postviral myocarditis can show spontaneous improvement, thoughin the minority of cases. The spontaneous recovery of systolic functionin cases of nonischemic cardiomyopathy isdifficult to predict but is more likely whensymptoms have been present for <3 monthsor when accompanied by less severe hemodynamic decompensation. When it occurs, recovery of function usually is seen within 6 to 8 months of the onset of symptoms. Substantialimprovement in some patients has beenreported after treatment with β－adrenergicreceptor blocking agents, resulting in the recentsuggestion that all patients being consideredfor cardiac transplantation should receive a trial

经缺血的损害.当肺血管阻力 >4Wood 单位时,肺血流压力梯度(平均肺动脉压减去肺毛细血管楔压)>15mmHg 或肺收缩压峰值 >50mmHg 应评为可逆性肺动脉高压.可以使用肺血管扩张剂如氧,分次静脉注射硝普钠或前列腺素 E_1,随后由一系列血流动力学测量,或以全身性低血压时肺动脉压力下降的终点来判断.该方法从 Costard Jackle 和 Fowler 对肺高压病人做心脏移植的研究中得到支持.当硝普钠致肺血管阻力下降 <2.5Wood 单位,而不伴有全身性低血压时,与正常肺血管阻力的病人存活率可以相比.不过,固定的、增加了的肺血管阻力或用硝普钠使肺血管阻力下降伴有全身性低血压的死亡率分别为 41% 和 28%.因此,固定的肺高压是心脏移植的禁忌证.这些病人,只要选择做心肺联合移植或长期得当的内科治疗后再次测量肺血管阻力症状,也许有些改善.

这里对估计可以做心脏移植的病人或即将做心脏移植的病人,应该如何处理,从中挑选出几点,作重点复习.

心脏移植对各种不可逆的心脏治疗有利,只要在移植之后,病人的症状和预计的生存时间均能超过病人的目前情况时,即可选择手术,通过基本的血液动力学及最大需氧能力的测定,对于心脏移植的时间选择和预后估计是有帮助的.移植后出现的主要心脏问题,包括早期急性异体移植物排斥的危险性增加,以及稍晚,异体移植的冠状动脉疾病的发生.而且,如注意心内血液动力学、运动能力、神经切除的影响以及预期的心电图和超声心动图发现,即可观察到心脏移植的受心者有独特的"正常"的生理学改变.

(待续)

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with these agents.

An important part of the evaluation at the transplant center is the measurement of right heart presssures. This information is used in assessing the effectiveness of current medical therapy, evaluating for the presence of increased pulmonary vascular resistance, and determining prognosis. Increased pulmonary vascular resistance has been clearly demonstrated to increase substantially the risk of death from right heart failure: the postischemic donor right ventricle is exposed to the increased pulmonary vascular resistance of the recipient. When the pulmonary vascular resistance is >4 Wood units, the transpulmonary gradient (mean pulmonary arterial pressure minus mean pulmonary capillary wdege pressure) is >15mm Hg, an evaluation for reversible pulmonary hypertension is neccssary. This evaluation is performed by the administration of a pulmonary vasodilator such as oxygen, or graded infusions of intravenous nitroprusside or prostaglandin E_1 followed by serial hemodynamic measurements with the end points of decreased pulmonary pressures or systemic hypotension. This approach is supported by data from a study by Costard-Jackle and Fowler of patients with pulmonary hypertension undergoing cardiac transplantation. When nitroprusside results in a decrease inpulmonary vascular resistance to <2.5 Wood units not accompanied by systemic hypotension, survival is comparable to that in patients with normal pulmonary vascular resistance. However, fixed, increased pulmonary vascular resistance ora nitroprusside-induced decrease in pulmonary resistance accompanied by systemic hypotension was associated with 41% and 28% mortality, respectively. For this reason fixed pulmonary hypertinsion is a contraindication to cardiac transplantation. In these patients alternatives include combindedheart-lung transplantation or future reevaluation because the condition of some patientswith increased pulmonary vascular resistancemay improve with long-term tailored medicaltherapy.

This review focuses on selected aspects of the treatment of patients being evaluated for and undergoing cardiac transplantation. Cardiac transplantation is a potential therapeutic option for a variety of irreversible cardiac disorders when the symptomatic status and anticipated survival after transplantation exceeds that of the patient's condition.The timing of ardiac transplantation with respect to prognosis is aided by the measurement of baseline hemodynamics and maximal aerobic capacity. Major cardiac problems that occur after transplantation include an increased early risk of acute allograft rejection and, later, the occurrence of allograft coronary artery disease. Furthermore, cardiac transplant recipients have unique "normal" physiologic alterations with respect to intracardiac homodynamics, exercise capacity, the effects of denervation, and expected electrocardiographic and echocardiographic findings. *(to be continued)*

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