

AICD: A NEW "BRIDGE" TO CARDIAC TRANSPLANTATION

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The automatic internal cardioverter defibrillator (AICD) is a proven therapy for patients with malignant ventricular arrhythmias, (VT/VF) refractory to medical therapy. Because of the long waiting period for cardiac transplantation, and the high likelihood of sudden arrhythmic death in this population, this study was undertaken to identify the influence of AICD in patients awaiting cardiac transplantation, who have refractory VT/VF. Ten patients with VT/VF awaiting cardiac transplantation have undergone AICD implantation (8 extra- and 2 intrapericardial) via sternotomy. All patients survived the AICD implantation and left the hospital. In the interval between AICD implantation and either cardiac transplantation or the present time (1-16 months), seven of these patients have received a mean of 16 shocks (range 0-32). One patient has received 19 shocks in the 24 hours prior to transplantation. At present, one patient has died from progressive heart failure. Four patients have gone on to successful transplantation and five patients await cardiac transplantation with a functioning AICD in place. In conclusion, the AICD represents a new "bridge" to cardiac transplantation that is well tolerated by these high-risk patients, avoids drug side effects and is efficacious in aborting sudden death, thereby allowing them to undergo successful cardiac transplantation.

ISCHEMIC INJURY ON EARLY POST-TRANSPLANT ENDOMYOCARDIAL BIOPSY: IMMEDIATE AND LONG-TERM CLINICAL SIGNIFICANCE

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To assess the incidence and significance of ischemia (ISC) on endomyocardial biopsy (EMB), the first 5 weekly EMB from 140 orthotopic heart transplant (OHT) recipients were reviewed. ISC (coagulation necrosis without cellular infiltrates characteristic of acute rejection or catecholamine effect) was present in 33 EMB from 28 recipients. Recipients with ISC did not differ from recipients without ISC with respect to age, sex, pre-OHT diagnosis, inotrope use or incidence of acute rejection after OHT. Donors for recipients with and without EMB ISC were similar with respect to sex, blood pressure, cause of death and inotrope use. Compared with recipients having no ISC, those with ISC had 1) higher mean donor age (27.7 vs 23.3 yrs; p<0.01); 2) longer mean ischemic time (169 vs 141 min; p<0.05); and 3) lower mean left ventricular ejection fraction one month after OHT (57.4 vs 64.9%; p<0.02). However, left ventricular ejection fraction at 3 months and overall mortality did not differ between the two groups.

Conclusions: 1) ISC is detected in 20% of recipients early after OHT; 2) ISC is present more frequently in allografts from older donors and with longer ischemic time; 3) Early EMB ISC may be related to early, but not long-term, OHT function; 4) Early EMB ISC does not influence post-OHT survival.

REGRESSION AND PREVENTION OF LEFT VENTRICULAR HYPERTROPHY ARE POSSIBLE IN HYPERTENSIVE HEART TRANSPLANT RECIPIENTS
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Arterial hypertension develops in most heart transplant recipients (HTXP) on cyclosporine. This prospective study investigates 1) whether in HTXP with LV hypertrophy(H) regression can be induced by antihypertensive therapy (T) and 2) whether T can prevent LVH when started early after onset of hypertension. 39 HTXP were evaluated with echocardiography and 24h-blood-pressure(BP)-monitoring before and 1.5, 3, 6, 9 and 12 months(m) after introduction of T (e.g. amlapril 10-20mg/d + furosemide 20-80mg/d + (in 26 HTXP) verapamil 120-360mg/d). Group I (diast. septal(VS)+posterior wall(PW) >23mm) included 17 HTXP (14m,3f, 43+10yrs, 18+15months pop), group II (VS+PW <23mm) 22 HTXP (20m,2f, 46+9yrs,7+6months pop). Changes in mean BP(mmHg) over 24h, LV mass(g, derived from 2D echo with a cylinder-hemiellipsoid formula) and parameters of LV function were compared in both groups (x±SD, **/*:p<0.01/0.001 vs pre T values):

	pre T	1.5 m	3 m	6 m	9 m	12 m
mean BP I	121±7	99±8*	95±7*	93±8*	94±9*	93±9*
mean BP II	120±9	99±8*	98±7*	97±7*	97±7*	95±5*
VS+PW I	26±2	24±2**	23±2*	22±2*	21±1**	21±2*
VS+PW II	21±1	20±1	20±1	20±1	20±1**	20±1**
LV mass I	219±27	210±14**	188±27*	180±25*	180±25*	171±19*
LV mass II	188±28	184±29	177±27	176±26	168±24*	170±23*

Heart rate, LV volumes, SV, EF and CO did not differ between group I and II and did not change during follow up. Conclusion: Though the initial extent of hypertension and the antihypertensive effect of T were comparable and LV size and function the same in both groups, VS+PW and LV mass decreased signif. more (p 0.01) in group I. Thus, in HTXP with LVH rapid regression was induced by T, while in HTXP with normal LV mass development of LVH was prevented.

FACTORS PREDICTING THE NEED FOR PERMANENT PACING FOLLOWING CARDIAC TRANSPLANTATION

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The factors associated with the requirement for permanent pacing (PP) following cardiac transplant (CTx) were retrospectively reviewed in 80 pts who survived greater than 3 months. Twelve of 80 CTx pts (15%) required PP for high degree AV block (7 pts) or sinus node dysfunction (5 pts) at a median of 19 days following CTx. Seven of 12 pts required PP within 2 weeks of CTx.

	Permanent Pacing		P
	Yes (n=12)	No(n=68)	
Donor age (yrs)	27.4±10.8	26.0±9.0	NS
Cold ischemic time (min)	119±37	143±76	NS
Total ischemic time	156±98	177±65	NS
Days of Isuprel	6.2±3.9	5.1±4.3	NS
Days of temporary pacing	8.3±3.8	4.0±4.3	.006
Grade of rejection	1.5±1	.84±.75	.009
% rejection ≥ 2	50%	12%	.006
% on Amiodarone	17%	15%	NS

Pts needing PP required postoperative temporary pacing (TP) for a longer period of time and had higher grades of rejection (Rej) on a scale of 0-4 in the first month postop compared to those without PP. Fifty percent of pts requiring PP had Rej grades of ≥2 compared to 12% of pts not requiring PP. Thirty-five percent of pts requiring ≥7 days of TP went on to need PP compared to only 10% of pts requiring <7 dys of TP. (p=.05). Conclusion: the need for postoperative TP for ≥7 dys or Rej grade ≥ 2 were predictive of those CTx pts requiring PP despite treatment of Rej.