6, 5, 2yr postTx. *Liver/Heart 47yo* female (amyloid neuropathy) received liver/heart. She died of heart failure 4mth postTx. *Liver/Heart/Lung* 42yo male (hep c cirrhosis + portopulmonary hypertension) received liver/heart/lung. He is well 6yr postTx. *Liver/Lung 2* males (20/29yo) received double Jung and LTx for cystic fibrosis. They are well 1 *&* 5yr postTx. For all liver/thoracic MVTx, standard thoracic was followed by standard LTx. In all Tx, IS: CsA/FK506, azathioprine/MMF, steroids. Induction (anti-lymphocyte or anti-IL 2 R ab) was added in high immune risk patients (Jung, pancreas, bowel, immunized kidney Tx). Steroid-sensitive acute rejection occurred in 7% of liver *&* in 16% of extrahepatic grafts. Chronic rejection occurred in 0% of liver *&* in 5% of extrahepatic grafts. 1 *&* 5yr patient survival is 89% *&* 89% after MVTx *v$* 90% & 77% after isolated LTx (log rank p=0.4). Conclusion In this MVTx cohort, the low % of extra-hepatic graft rejection reflects the "liver protective effect". The low % of liver rejection suggests that the liver itself within the MVTx unit is immune-protected, probably via an antigen mass-mediated effect. Excellent survival and low risk of rejection documented herein justify allocation of multiple organs to single recipients.

Abstract# 1578 Poster Board #-Session: P225-III

Long-Term Renal Function in Liver Transplant Patients with Post-Operative Renal Dysfunction Receiving Anti-Thymocyte Globulin-Induction and Delayed Calcineurin inhibitors, M. Cantarovich, J. Tchervenkov, J. Barkun, M. Deschenes, S. Paraskevas, P. Wong, P. Ghali, P. Chaudhury, D. Vrochides, M. Fernandez, P. Metrakos. *McGill University, Montreal, QC, Canada.*

The incidence of chronic kidney disease (CKD) requiring chronic dialysis is up to 20% in long-term recipients of non-renal Tx. Post-operative renal dysfunction (RD) is associated with an increased risk of CKD. Purpose: To determine the impact on renal function of delayed initiation of calcineurin inhibitors (CNI) using ATG-induction in LTx pts with post-operative RD. Methods: We analyzed 379 adult LTx performed between 6/90 and 8/04. RD was defined as Scr > 150 µmol/L on post-operative day (POD) 1 -2. CNI were not initiated until Scr was <150 µmol/L and were combined with either azathioprine or MMF and prednisone +/- ATG-induction. Pts were divided into 3 groups (G). In GI, 112 pts (55±12 yrs) with RD received ATG-induction and delayed CNI; in G2, 209 pts (56±11 yrs) without RD received ATG-induction and in G3, 58 pts (54±11) without RD did not receive ATG-induction. ATG was given every 3-5 days in Gl and daily in G2 (max. dose=6 mg/kg). Pts in Gl and G2 received low-dose CNI and pts in G3 received standard dose-CNI. Results: MELD score was 29±12 in Gl (P<0.001 vs. G2 and G3), 22±9 in G2 and 21±9 in G3. CNI were started on POD 12±13 in Gl (P<0.001 vs. G2 and G3), on POD 4±5 in G2 and on POD 5± 18 in G3, Pt survival at I -, 5- and 7-yrs was 73%, 55%, 46% in Gl; 83%, 70%, 63% in G2 (P=0.002 vs. Gl); 84%, 72%, 69% in G3 (P=0.01 vs. Gl). The incidence of acute rejection in the first yr post-LTx was 36% in Gl, 28% in G2 (P=0.02 vs. Gl and G3) and 43% in G3. The cumulative incidence of CKD requiring chronic dialysis at 1-, 5- and 7-yrs was 2.0%, 3.4% and 9.8% in Gl; 0%, 0.9% and 2.0% in G2 (P=0.08 vs. G2); 0%, 3.3% and 3.3% in G3.

Creatinine clearance (ml/min) Cockroft-Gault formula

	Day 0	POD 2	1-month	1-year	5-years	7-years
Gl(RD,ATG)	68±41*	34±14*	67±30**	67±29***	57±30	63±27
G2 (No RD, ATG)	96±40	89*45	83±34	78±32	72±30	64±22
G3 (No RD, No ATG)	102±35	88±40	86±36	80±34	66±30	60±28

*P<0.001 vs. G2 and G3, **P<0.0l vs. G2 and G3, ***P<0.05 vs. G2

Conclusion: ATG-induction and delayed initiation and low-dose CNI results in a relatively low incidence of CKD requiring chronic dialysis without an increased incidence of acute rejection in LTx pts with post-operative RD. Prospective randomized trials should confirm the benefits of this strategy and combine it with CNI minimization or withdrawal.

Abstract# 1579 Poster Board #-Session: P226-III

Benchmarking and Scoring of Surgical Confounding Factors with influence on Results after Liver Transplantation. Harald Schrem,' Ludwig Hoy,' Nina Till,[1] Moritz Kleine,[1] Hueseyin Bektas,' Thomas Becker,' Juergen Klempnauer.[1] *'Visceral and Transplantation Surgery, Medizinische Hochschule Hannover, Hannover, Germany.*

Background: Results of liver transplantation depend on many non-surgical variables including recurrence of the underlying disease and immunological rejection. All studies on results after liver transplantation face the difficulty that the impact of relevant surgical confounding factors is difficult to quantify.

Material and methods: The clinical datasets of 2114 consecutive liver transplants Performed in a single center between January 1983 and December 2005 were used for the development of a surgical quality and a surgical challenge score. Statistical methods included Chi-square, 7-test, log rank test, multivariate analysis and Cox regression.

Findings: The surgical quality score for liver transplantation represented by the numerical addition of the number of intraoperative (bleeding and blood vessels) and postoperative complications (hepatic artery, portal vein, vena cava, hepatic veins, bile *duct)* during hospital stay correlated significantly (p<0.0005) with hospital mortality, long-term patient survival, duration of the procedure, the number of intensive care days and the era of liver transplantation. The surgical challenge score represented by the numerical addition of binary identifiers (0=not true. 1=true) concerning collaterals, previous abdominal surgery, adhesiolysis, day time between 22:00 h and 06:00 h, portal vein thrombosis, interposition graft for porta) vein and/or arterial reconstruction, aortal anastomosis, >1 arterial anastomosis, hepaticojejunostomy, intraoperative resuscitation, splenectomy, lymphadenectomy and temporary abdominal closure at the time of operation correlated significantly (p<0.0005) with hospital mortality, number of liver grafts used per patient, age of the patient, duration of the procedure and the era of liver transplantation.

Conclusion: The surgical quality and the surgical challenge score should be applied in future outcome studies to assess the impact of

Abstract# 1580 Poster Board #-Session: P227-III

A Normal Initial Biopsy Does Not Predict Subsequent pathology Post-Liver Transplant. Sheila L. Eswaran, Richard K. Gilroy, Lee T. Austin, Jane Meza, Daniel F. Schafer, Timothy M. McCashland. *Hepatology, University of Nebraska, Omaha, NE.*

Intro: After liver transplant, liver enzymes (LE) may not correlate with graft histology. There are currently no data regarding the frequency of normal biopsies in patients with abnormal LE nor influence of normal biopsy on outcome. Methods: All adult liver patients transplanted (N=174) between 1/1/2000 and 12/31/2001 were reviewed with 142/174 biopsied for abnormal LE through to 1/1/2006, Cases were normal initial biopsies (N=26). Normal was either completely normal histology or mild nonspecific changes. Controls were patients who had specific diagnoses on initial biopsy (N= 116). Fisher exact test and t-Test were used. Results: Case and control groups were no different in terms of age, sex, primary diagnosis or range of abnormal LE. The mean number of biopsies (2.46 v. 4.02, p= 0.01) and mean number of follow-up abnormal biopsies (1.23 v. 2.55, p=0.013) were less in the case group, however the frequency of subsequent abnormal biopsies (84%) was the same in both groups (Table 1). Time to next biopsy (378 v. 167 days, p=0.0I3) was longer in the case group. There were no statistical differences in the percent of initial normal biopsies based on primary disease (Table 2). Conclusion: An initial normal biopsy leads to less subsequent biopsies even though this finding fails to predict developing histologic abnormalities. These data suggest a role for protocol biopsies in patients with abnormal LE.

Table 1

		Case: Normal Initial Biopsy N=26	Control: Ab normal Initial Biopsy 16.....	P value
Mean Age (Range)	nge)	53(19-70)	50(13-71)	0.211
Males (Percent)	ies	15(57.7)	68 (58.6)	0.999
Days to Repeat Biopsy	(Total)	378	167	0.013
Mean # of Biopsies (Ra	s (Total)	2.46(1-5)	4.02(1-	0.01
Mean # Abnormal Biop	ys	1.23(32)	2.55 (293)	0.013
Mean # Normal Biopsie	Normal Ir	0 233(6)	Ό.470(54)	P value 0.182
Mean Graft Survival	Biopsy N	1605	1718	0.524

Table 2

D	initial =26	Abnormal Initial Biopsy N=116	••••••• ••••••;
Primary Disease			0.270
HCV	12(23%)	40 (77%)	0.366
Alcohol Related	3 (33%)	6 (66%)	0.585
HBV	0	5(100%)	0.999
PBC	2(18%)	9(81%)	0.305
PSC	1 (7%)	14(93%)	0.999
AIH	f(ll%)	8 (89%)	0.999
Hemochromatosis	1 (20%)	4 (80%)	0.706
Cryptogenic	3 (23%)	10(77%)	0.999
NASH	1 (20»/.)	4 (80%)	0.999
HCC	0	1	Ό.457
A1AT	:0	(100	0.689
Budd **Chiari**	1 (33%)	%)	
Other	1 (9%)	3(100%	

Abstract# 1581 Poster Board #-Session: P228-III

Outcome in Patients Undergoing Cardiac interventions before and after Liver Transplantation. Michael Herman,' Hugo Bonatti,[1] Jaime Aranda-Michel,' Rolland C. Dickson,[1] Justin Nguyen,' Raj Satyanarayana,[1] Denise Harnois,[1] Barry Rosser,[1] Winston Hewitt,[1] Christopher Hughes,[1] Dan/el Yip,[1] Andrew Keaveny.' *'Department of Transplantation, Mayo Clinic, Jacksonville, FL.*

With the advent of improved medical and surgical management, patients with co-morbidities that were previously felt to contra indicate liver transplantation (LT) can now undergo this procedure. Defining acceptable criteria is challenging as outcome data remain limited. Cardiovascular (CV) disease is highly prevalent in the community. Patients with established C V disease require careful consideration pre-LT because of data indicating excessive CV disease post-LT. Aim: To evaluate CV risk factors and outcomes in patients who had cardiac interventions (CI) before or after LT. Methods: This was a retrospective review of all patients who underwent LT at our center from 1998-2001. Subjects who had a history of a CI, defined as coronary artery bypass grafting (CABG) or coronary artery stenting (CAS), before or after LT were identified. CV risk factors evaluated include hyperlipidemia, diabetes mellitus (DM), and tobacco use. Comparisons between those who underwent an intervention pre-LT (Group I) vs. those who had an intervention post-LT (Group 2) were performed using Pearson Chi-square tests. Results: 467 LT were performed in 402 patients during the study period. Group 1 consisted of 12 subjects, all of whom had a CABG, one who also had CAS. Group 2 contained 14 subjects, 2 with a CABG, 12,with CAS. The etiology of liver disease was comparable for each group, HCV being the most common underlying cause. Cardiac risk factor data