**Methods:** Surveillance of historical data from STAR files was performed from 1994–2013. Included in the study was first time whole organ cadaveric adult liver transplantation. Percentages, mean/median, and Kaplan-Meier curves were used to analyze donor/recipient demographic variables and long term patient survival.
**Results:** Of the 223,648 study population, 66,461 met the inclusion criteria with donor/recipient characteristics of mean age, percent male, median BMI of 39.89 ± 17.1, 60.2%, 25.4(7.4–73.2), and 53 ± 10, 66%, 27.38(10.76–72.86) respectively. Median cold (hours) and warm (minutes) ischemia time of 7(0–49.5) and 43(0–302) respectively, median MELD, waitlist and length of stay in days were 20(6–75), 101(0–6286), and 11(0–3045). Percent cum survival over 5, 10, 15 years are 75, 60, 45 respectively. Functional status at listing and transplant requiring total assistance were 15 to 24% respectively. Patients in ICU at the time of listing and transplant were 7.1 and 13.7% respectively.
**Conclusion:** From the time of listing to transplant there is a significant decline in the medical and functional status of the transplant candidates. Despite decline in medical and functional status, the long term median survival of liver transplant recipient has been good.

## OS186 DESCRIPTION OF BODY WEIGHT PARAMETERS UP TO 3 YEARS AFTER SOLID ORGAN TRANSPLANTATION: THE PROSPECTIVE SWISS TRANSPLANT COHORT STUDY

*Sonja Beckmann[1], Natasa Nikolic[2], Kris Denhaerynck[1], Isabelle Binet[3], Michael Koller[4], Elsa Boely[5], Sabina De Geest[1]*
*[1]University of Basel, Switzerland; [2]University Hospital Zurich, Switzerland; [3]Cantonal Hospital St Gallen, St Gallen, Switzerland; [4]University Hospital Basel, Switzerland; [5]University Hospital Of Geneva, Switzerland*

**Background:** Weight gain and obesity are serious concerns after organ transplantation (Tx). Due to diverse study methods, an unbiased comparison of body weight parameter across organ groups is lacking.
**Methods:** Based on the same methodology, we compared the evolution of weight parameters up to 3 years post-Tx using data from the prospective, nationwide Swiss Transplant Cohort Study. Changes in mean weight and body mass index (BMI) category were compared to reference value from 6 months post-Tx to account for potential pre- and early post-Tx fluid overload. Descriptive statistics were used to describe the data.
**Results:** We examined 1359 adult recipients, kidney (58.3%), liver (21.7%), lung (11.6%), and heart (8.4%), transplanted between 05/2008 and 05/2012. In all organ groups obesity increased over time. At all measurement points, kidney Tx patients had the highest prevalence of obesity (>19%), which is about twice the measure compared to the Swiss general population. Compared to the other organ groups at 3 years post-Tx, liver Tx recipients had the greatest weight gain (mean 4.8 ± 10.4 kg), the highest incidence of new onset obesity (38.1%) and the biggest proportion of patients (57.4%) gaining >5% body weight. Within organ groups, weight gain from 6 months to 3 years post-Tx differed between BMI categories: In liver Tx, those who were obese at 6 months post-Tx had the highest weight gain; while underweight kidney, lung and heart Tx patients gained most weight and accordingly, 41.2%, 53.8% and 100%, respectively, switched to the normal weight category.
**Conclusion:** Weight gain patterns differed across organ groups and BMI categories, yet the majority of our Swiss Tx recipients experienced lower post-Tx weight gain compared to international Tx data. Weight gain in kidney, lung and heart Tx patients who are underweight at 6 months seems to be favorable. However, liver Tx patients who are obese at 6 months post-Tx might benefit from interventions to prevent subsequent weight gain.

## OS187 LOW SKELETAL MUSCLE MASS IS ASSOCIATED WITH INCREASED HOSPITAL COSTS IN PATIENTS WITH CIRRHOSIS LISTED FOR LIVER TRANSPLANTATION

*Jeroen Van Vugt, Stefan Buettner, Louise Alferink, Niek Bossche, Ron De Bruin, Sarwa Darwish Murad, Wojciech Polak, Herold Metselaar, Jan Ijzermans*
*Ersamus Mc University Medical Center, The Netherlands*

**Background:** Low skeletal muscle mass (sarcopenia) is associated with increased morbidity and mortality in liver transplant candidates. Our aim was to investigate the association between sarcopenia and hospital costs in patients listed for liver transplantation.
**Methods:** Consecutive patients with cirrhosis listed for liver transplantation between 2007–2014 in a Eurotransplant centre were identified. Patients listed with high urgency, for acute liver failure, re-, and multivisceral transplantation were excluded. Skeletal muscle mass was measured on computed tomography (skeletal muscle index [SMI], $cm^2/m^2$) performed within 90 days from waiting list placement. Sex-specific quartiles were created. The lowest quartile represented patients with sarcopenia.
**Results:** In total, 363 patients were listed during the study period, of which 225 were included. Median time on the waiting list was 169 (IQR 46–306) days and median MELD-score was 16 (IQR 11–20). The median total hospital costs in patients with sarcopenia were €11,294 (IQR 3,570–46,469) compared with €6,878 (IQR 1,305–20,683) in patients without sarcopenia (p = 0.008). In multivariable regression analysis an incremental skeletal muscle mass was significantly associated with a decrease in total costs (€458 per incremental SMI, 95%CI 14–902, p = 0.043), independent of the total time on the waiting list. Although costs during admission for transplantation did not significantly differ between patients with and without sarcopenia, a significant difference was found when these costs were added to the waiting list costs (€98,703 [IQR 75,909–121,071] vs. €81,982 [IQR 58,999–111,497], p = 0.037).
**Conclusion:** Sarcopenia is independently associated with higher costs during waiting list placement of liver transplant candidates, as well as with higher total hospital costs in patients undergoing liver transplantation. Optimizing patients' skeletal muscle mass may therefore lead to a decrease in hospital expenditure.

## OS188 OUTCOME OF LIVER TRANSPLANTATION FOR HEPATITIS A VIRUS RELATED ACUTE LIVER FAILURE: COMPARATIVE STUDY WITH HEPATITIS B VIRUS RELATED ACUTE LIVER FAILURE IN ADULT RECIPIENTS

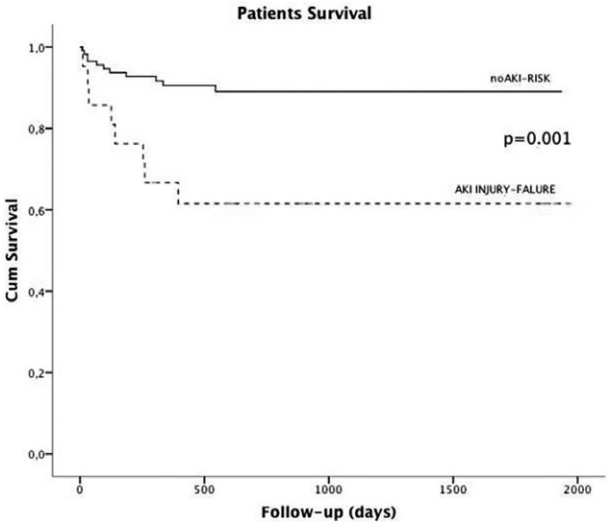
*Dong-Hwan Jung, Shin Hwang, Ki-Hun Kim, Chul-Soo Ahn, Deok-Bog Moon, Tae-Yong Ha, Gi-Won Song, Gil-Chun Park, Sung-Gyu Lee, Jae-Hyun Kwon*
*Asan Medical Center University of Ulsan College Of Medicine, Korea*

**Background:** Hepatitis A virus (HAV) infection can cause acute liver failure (ALF). This study intended to evaluate the results of liver transplantation (LT) for HAV-related ALF (HAV-ALF) and to compare the clinical profiles and outcomes between the patients undergone LT for HAV ALF and hepatitis B virus (HBV)-related ALF (HBV-ALF) in adult patients.
**Methods:** Between January 2005 and December 2014, 3616 cases of adult LTs were performed at Asan Medical Center. Among them, this study included adult recipients who underwent LT for HAV ALF ($n$ = 29) that were compared with adult recipients underwent LT for HBV ALF ($n$ = 34).
**Results:** HAV-ALF group included 18 males and 11 females with mean age of 33.1 years. The MELD score was 34.1. They underwent living-donor LT in 19 and deceased-donor LT in 10. Post-transplant HAV recurrence developed in 4 patients (13.8%). Causes of patient death after LT for HAV-ALF included sepsis from pancreatitis ($n$ = 3), HAV recurrence ($n$ = 3), graft infarction ($n$ = 1), multiorgan failure ($n$ = 1), and brain death ($n$ = 1). Compared with HBV-ALF group, HAV-ALF group was associated with younger recipient age (p = 0.001), higher leucocyte count (p = 0.013), higher serum creatinine (p = 0.000), and explant liver weight-to-standard liver volume ratio (p = 0.000) Graft survival rates after LT for HAV- and HBV-ALF were 65.5% and 88.0% at 1 year and 65.5% and 84.0% at 5 years, respectively (p = 0.048). Patient survival rates after LT for HAV- and HBV-ALF were 69.0% and 88.0% at 1 year and 69.0% and 84.0% at 5 years, respectively (p = 0.093). Multivariate analyses demonstrated that acute pancreatitis and HAV recurrence were independent risk factors of graft and patient survival.
**Conclusions:** Post-transplant outcome was poorer in patients with HAV-ALF than in those with HBV-ALF due to higher occurrence rates of acute pancreatitis and viral reinfection. Special attention should be paid to prevention, detection, and treatment of these risk factors after LT for HAV-ALF.

## OS189 FEMALE GENDER AND HYPERFILTRATION: INDEPENDENT PREDICTORS OF ACUTE KIDNEY INJURY AFTER LIVER TRANSPLANTATION

*Francesca Tinti, Fabio Melandro, Ilaria Umbro, Federica Fiacco, Edoardo Poli, Assunta Zavatto, Andrea Cappoli, Stefano Ginanni Corradini, Pasquale Bartolomeo Berloco, Massimo Rossi, Anna Paola Mitterhofer, Anna Paola Mitterhofer*
*Sapienza University Of Rome, Italy*

**Background:** Acute kidney injury (AKI) after liver transplantation (LT), in particular stages 2–3, has recently been recognized to be important predictor for worse post-LT outcome and increased mortality. Risk factors for post-LT AKI are multiple and include pre-LT renal dysfunction, lower pre-LT serum creatinine (sCr) levels, higher MELD score, HCV infection, diabetes, intraoperative haemodynamic instability, post-LT graft dysfunction and infections. Abnormally lower sCr values (<0.4 mg/dL) are frequent before LT, particularly in female, and are associated to hyperfiltration, not related to a better kidney function. Hyperfiltration has been recognized to be an important predictor of post-LT mortality. Aims of this study are to evaluate incidence and risk factors for AKI, its relation with hyperfiltration and its impact on patients' survival.
**Methods:** Retrospective single-centre study of 145 patients (117 M, 28 F) who underwent LT (January 2008–October 2015). We considered renal function from listing to transplant and within one week post-LT, functional recovery of the graft, intraoperative parameters. AKI defined and classified on the basis of KDIGO Guidelines (2012). Hyperfiltration defined as eGFR>120 ml/min/1,73 m2.




**Results:** 22 out of 145 patients (15%) experienced post-LT AKI stages 2–3 (13/117M, 11.1%; 9/28F, 32.1%). Survival was significantly lower in patients with AKI stages 2–3 (42% vs. 58%, p = 0.001) (see Figure 1).

The evaluation of risk factors on the univariate analysis evidenced female gender, lower pre-LT sCr, higher LAB-MELD and renal hyperfiltration as predictive factors for development of AKI stages 2–3. In the multivariable analysis, the independent predictors of development of AKI stages 2–3 were female gender (p = 0.020) and renal hyperfiltration (p = 0.045).
**Conclusion:** We showed a significant increased mortality in patient developing AKI post-LT. Female gender and renal hyperfiltration resulted independent predictors for development of AKI post-LT.

## OS190 ASSESSMENT OF THE EFFICIENCY OF ALBUMIN DIALYSIS WITH THE "PROMETHEUS" SYSTEM IN THE TREATMENT OF PATIENTS WITH ACUTE-ON-CHRONIC LIVER FAILURE

*Marcin Kotulski, Waldemar Patkowski, Mariusz Grodzicki, Krzysztof Zieniewicz*
*Department Of General Transplant And Liver Surgery, Poland*

**Background:** At present, liver transplantation is the only recognised method of treatment patients with acute-on-chronic liver failure (AoCLF), which, however, is not widely applied due to the highly specialised nature of the procedure, its high costs, and most of all, a limited pool of organs for transplantation.
**Aim:** The aim of the thesis was to assess the use of the "Prometheus" - albumin dialysis non-biological liver support system (FPSA - Fractionated Plasma Separation and Adsorption) in the treatment of patients with AoCLF.
**Material and method:** A retrospective analysis was conducted on 134 patients treated in the Department between 2001 and 2012 for AoCLF. Patients were divided into a 31-person group that received standard therapy – the AoCLF-SMT group and a 103-person group of patients that additionally received albumin dialysis – the AoCLF-FPSA group. The groups were compared independently within each disease entity. Biochemical markers of liver function, kidney function, morphological parameters and vital functions were analysed and compared. The examination involved complications of both therapies.
**Results:** The survival of patients was compared across the following periods: a month, 12 months, and 144 months, showing respectively 50.5%, 38.8% and 37.9% survival rates in the AoCLF-FPSA group and 22.6%, 12.9% and 9.7% survival rates in the AoCLF-SMT group.
**Conclusions:** Albumin dialysis with the "Prometheus" system was found to be efficient in the treatment of patients with acute-on-chronic liver failure through decreasing the levels of total bilirubin concentration in patient's blood and significantly improving kidney function, as well as positively impacting the patients' central nervous system function through reducing the degree of encephalopathy. The use of albumin dialysis with the "Prometheus" system increases the survival of patients with acute-on-chronic liver failure with high degree of liver encephalopathy and high MELD scores.

## OS191 THE PROGNOSTIC VALUES OF SCORING SYSTEMS FOLLOWING LIVER TRANSPLANTATION

*Özlem ÇakıN[1], Hakan Parlak[2], Ayça Gümüş[2], Bülent AydıNlı[3], Melike Cengiz[2], Murat YıLmaz[2], Atilla Ramazanoglu[2]*
*[1]Akdeniz University Hospita, Anesthesiology Icu Department, Turkey;*
*[2]Akdeniz University Hospital Anesthesiology Icu Department, Turkey;*
*[3]2Akdeniz University Hospital, Organ Transplantation Center, Antalya, Turkey*

**Introduction:** The aim of the study was to evaluate the prognostic efficacy of various physiologic scoring systems recorded at early postoperative period following liver transplantation (LT) on prediction of ICU stay, mechanical ventilation (MV) duration and mortality.
**Materials and methods:** APACHE II, SOFA, MELD scores obtained at first day of ICU admission, ICU stay, MV duration and early mortality (28 days) of the patients who have undergone liver transplantation at Akdeniz University Anesthesia ICU between 2010 and 2016 were evaluated retrospectively. The patients under 12 years old ($n$ = 39), suffering from fulminant hepatitis ($n$ = 13) and undergone retransplantation were not included in the study. The study was improved by ethic committee.
**Results:** 213 patient records were evaluated. Median MV duration was 5 hours (1–186) and mean ICU stay was 35 hours (8–552). Mean APACHE II, SOFA and MELD scores were 9(2–29), 6(2–16) and 18(9–36) respectively. All scoring systems significantly predicted the patients whose ICU stay were higher than the mean value (p < 0.001). MELD score was insufficient to assume the patients with MV>5 hours while other were predictive. Early and 3 month survivals were 89% and 86%, respectively (SE: 0.03). ROC analysis results performed to identify the cut off values for predicting early mortality for APACHE and SOFA revealed 10.5 (AUC=0.853) and 6 (AUC=0.815), respectively (p < 0.001). Single and multi-variant Cox regression analysis revealed significant efficiency of APACHE and SOFA scoring systems at predicting early mortality.
**Discussion:** The patients with high APACHE II and SOFA scores following LT had high mortality, long ICU stay and MV duration in this study. MELD score was insufficient to predict these prognostic parameters. Studies including larger series of patients with various illness severities should be conducted to reveal the potential efficiency of scoring systems for predicting the prognosis of the patients undergoing LT.

## OS192 HIGH SENSITIVITY AND SPECIFICITY OF PHOSPHATIDYLETHANOL FOR DETECTION OF ALCOHOL CONSUMPTION IN THE TRANSPLANT SETTING

*Martina Sterneck[1], Yannick Beres[1], Sven Pischke[2], Wolfgang Weinmann[3], Alexandra Schröck[3], Alexander Müller[1], Gisela Skopp[4], Ansgar Lohse[1], Björn Nashan[1], Hilke Andresen[2]*
*[1]University Hospital Hamburg Eppendorf, Germany; [2]University Hospital Hamburg Eppendorf, Germany; [3]University of Bern, Switzerland; [4]University Medical Center Heidelberg, Germany*

Phosphatidylethanol (PEth) is a new, highly specific direct alcohol marker which can detect alcohol consumption dating back up to three weeks. The aim of this study was to assess its diagnostic value in the liver transplant setting.
**Methods:** In this prospective study the alcohol marker PEth, ethanol, methanol, carbohydrate deficient transferrin (CDT), ethylglucuronide in urine (uEtG) and hair (hEtG) were tested in pre- and post-transplant patients with underlying alcoholic liver disease. Results were compared with patients' statements in a written questionnaire.
**Results:** Altogether 51 pre- and 61 post-transplant patients were included. 28/112 (25%) patients tested positive for at least one alcohol marker. There was no difference between patients pre and post transplantation. PEth alone revealed alcohol consumption in 18% of patients. With respect to detection of alcohol intake in the preceding week, PEth showed a 100% sensitivity. PEth-testing was more sensitive than the determination of ethanol, methanol, CDT or uEtG alone (sensitivity 25% (confidence interval [CI] 95%, 7–52%), 25% (7–52%), 21% (6–45%), and 71% (41–91%), respectively), or these four markers applied in combination. Specificity of all markers was 92% or higher. Additional testing of hEtG revealed alcohol consumption in 7 patients, who were not positive for any other alcohol marker. This indicates that these patients had not consumed alcohol in the preceding month, but in a time period of 2–6 months prior to presentation.
**Conclusions:** PEth was found to be a highly specific and sensitive marker for detection of recent alcohol consumption in pre- and post-transplant patients. It is determined in a blood specimen which in contrast to testing EtG in the urine cannot be falsified by the patient. The additional determination of hEtG was useful in disclosing alcohol consumption 3–6 months retrospectively.