## SCIENTIFIC ABSTRACT BOOK

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#### Intraoperative hemodynamic monitoring in kidney transplantation

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Intraoperative hypotension is among numerous risk factors linked to delayed graft function (DGF) after kidney transplantation (KTx). The absence of consensus on optimal techniques and parameters for measuring arterial blood pressure in diverse populations impedes optimal renal graft perfusion, thus leading to an increase in the risk of DGF.

To address this, we conducted a retrospective study involving 264 KTx patients receiving organs from deceased brain-dead donors between October 2018 and September 2023. We analyzed KTx cases with and without DGF, focusing on intraoperative arterial hypotension, defined as a drop of 25% or more in systolic and diastolic blood pressure from recorded baseline values. When combined with 10 parameters associated with DGF pertaining to the kidney graft (graft serum creatinine), to the recipient (age, BMI, dialysis duration, baseline SABP), and to the KTx procedure (duration of general anesthesia, intraoperative fluid load, volume repletion, intraoperative vasopressor use and post-declamping time), the classification accuracy reached an AUC of 0.69 (logistic regression and naïve Bayes) and 0.70 (random forest), warranting prospective validation in future studies.





#### Lymphoproliferative disease after kidney transplantation: center experience

#### Cristina Bucsa

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Transplant recipients are at high risk of malignancy. Posttransplant lymphoproliferative disorders (PTLD) are lymphoid or plasmocytic uncontrolled proliferations and include a wide spectrum of diseases. Two main risk factors of PTLD are the cumulative immunosuppressive and the oncogenic impact of the Epstein-Barr virus. Early (early PTLD) - >85% appear in the first-year post-transplant and are EBV+ Late (late PTLD): 5-15 years post-transplant, can be EBV negative; Very late PTLD – at >20 years post-transplant.

The 2017 WHO classification of Hematopoietic and Lymphoid Tumors classifies PTLD into four categories: 1. Nondestructive PTLD (ND-PTLD), including three subtypes, 2. Polymorphic PTLD (P-PTLD), 3. Monomorphic PTLD (M-PTLD, including B-cell and T-/NK-cell types), and 4. Classic Hodgkin lymphoma PTLD (HL-PTLD). The majority of PTLD is of B-cell origin, with CD20+ monomorphic diffuse large B-cell lymphoma (M-DLBCL) accounting for the majority of cases, whereas 5–10% are T/NK or classic Hodgkin lymphoma-type. P-PTLDs are the second most common category of PTLD and make up between 6% and 27% of cases in retrospective series. They are destructive lymphoplasmacytic proliferations that do not fulfill the strict criteria of lymphomas and are difficult to diagnose. The first step in the care for patients with PTLD is decreasing immunosuppression and about 60% of patients will need second-line therapy with anti-CD20 monoclonal antibody for CD20 + (rituximab), and lymphoma-specific regimens.

Optimization of the approach to PTLD is very important because the prevalence of PTLD is expected to rise as transplant number continue to increase.





### Long-term evaluation of heart transplant patients in the Transplant Center of the Cardiovascular and Transplant Emergency Institute of Târgu Mureș

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The heart transplant activity began in Târgu Mureș in 1999. Over the course of 25 years, we have performed 99 transplants and monitored 88 patients, who underwent heart transplant surgery. A close follow-up is essential for the survival of heart transplant recipients, as survival is the primary indicator for assessing the long-term efficacy of this form of therapy in heart failure. Also, the rate of major complications, occurring after cardiac transplant in our center, is consistent with the data available in the literature.

Our main objective is to maximize the efficiency of the long-term monitoring activity in this field, by following the ISHLT recommendations, in order to offer heart transplant patients a real chance at life. As a result, our center has a 1-month post-cardiac transplant survival rate of 88%, 1-year survival rate of 82%, 5-year survival rate of 74%, and a 53% survival rate of over 10 years.





Analysis of cardiopulmonary arrest cases in the Bucharest-Ilfov region in 2023: insights from SMURD Bucharest

**Bogdan Opriță**<sup>1</sup>, Bogdan Dinu<sup>1</sup>, Gabriel Avram<sup>1</sup> <sup>1</sup>*Clinical Emergency Hospital of Bucharest, Romania* 

The presentation shows an analysis of cardio-pulmonary arrest (CPA) and the results of cardio-pulmonary resuscitation (CPR) performed out of hospital by the Mobile Service of Reanimation and extrication (SMURD) teams in the Bucharest-Ilfov County in 2023. Paramedical and advanced medical teams assist around 2511 cases with 378 (15,05 %) cases with return of spontaneous circulation (ROSC).

Analyses was limited by the logistical reasons in which the main was the inexistence of national register or at least in our region for CPA. We made this analysis to evaluate the possibility to use ECMO in CPR.





#### "Sf. Maria" Clinical Hospital Bucharest experience and development in solid organ transplantation

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Introduction: Lung and liver transplantation are lifesaving procedures for patients with end stage pulmonary and liver diseases. In this presentation we learn, discuss and conclude the first years of our transplantation program, with the challenges and particularities of our experience.

Methods: Our liver transplant program debuted in 2014 and on April 17, 2018 the first lung transplant in Romania was performed by a multidisciplinary team in "Sf. Maria" Clinical Hospital Bucharest. We analyzed retrospectively clinical data regarding organ procurement, underlying disease of the recipients, transplantation technique, option for extracorporeal membrane oxygenation support, as well as patient outcome and survival rate.

Results: Fifteen lung procurement attempts from brain-dead donors, resulted in eleven bilateral and one unilateral lung transplantation. Fifty-six patients received whole graft liver transplant and only one underwent split liver transplant using a right hemiliver graft. The underlying diseases for lung transplant were: pulmonary bilateral emphysema, severe bronchiectasis, lymphangioleiomyomatosis, cystic fibrosis, pulmonary fibrosis and primary pulmonary hypertension, while for liver transplant were chronic hepatic viral infection and alcoholic cirrhosis. The surgical approach in lung transplant was antero-lateral thoracotomy (-ies). Most cases required veno-arterial extracorporeal membrane oxygenation support. Three months and one-year survival rate were 83 and 75 % respectively.

Conclusions: We are continuously searching new ways to improve the results of our liver transplant program regarding the survival and the quality of life. The initial results of our lung transplant program are encouraging and comparable to other similar volume centers despite the complexity of the recipient cohort.





#### Challenges in pediatric heart transplantation

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Heart transplantation in infants and children is now accepted therapy. According to the registry of the International Society for Heart and Lung Transplantation, approximately 600-700 pediatric heart transplantation procedures are performed worldwide each year, representing about 12% of the total number of heart transplants performed and the expected 1-year survival rate is 80-90%, the 2-year survival rate is 80-85%, and the 5-year survival rate is approximately 70-80% in experienced centers.

In infants, congenital malformations are still the most common indication for heart transplantation while in older children, it is cardiomyopathy.

The indications for pediatric heart transplantation include the following: cardiomyopathy; anatomically uncorrectable congenital heart disease; refractory heart failure after previous cardiac surgery due to ventricular dysfunction or valve disease; complications of failing Fontan; significant cardiac allograft vasculopathy or chronic graft dysfunction of a previous heart transplant; unresectable symptomatic cardiac neoplasms and refractory ventricular arrhythmias. At present, there are no specific guidelines outlining hemodynamic, echocardiographic, and clinical criteria for the advisability of cardiac transplantation in children with dilated cardiomyopathy.

Weight-based matching is the most common form of matching in pediatric HTx with a donor-recipient weight ratio between 0.7 and 3 having limited impact on outcomes.

Cardiac transplantations during childhood have immunological benefits, especially during the first 30 days of life. Because of the immature immune system in the pediatric population, the ABO-incompatible transplantation remarkably reduces the waiting list time and expands the potential donor pool for pediatric patients.

In the current era of heart transplantation, pediatric heart transplantations are limited by the supply of donor allografts. So, although a "perfect" organ would be ideal, acceptance of one that is "good enough" has the potential to improve survival by increasing offer acceptance ("extended criteria").





#### ABO incompatible kidney transplantation: challenge and opportunity

#### Dorina Tacu<sup>1</sup>

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ABO blood group incompatibility (ABO-I) was historically considered an absolute contraindication to kidney transplantation due to the high risk of acute antibody-mediated rejection and early graft loss.

However, the urge to minimize the gap between the candidate's number on the waitlist for kidney transplants and the available kidney donors led to finding new ways to use organs from ABO-I kidney donors, especially in the era of using more potent immunosuppression therapies and efficient procedures for overcoming these barriers. Progress in ABO incompatible kidney transplantation makes it currently a real and efficient option for increasing the number of living donor kidney transplants.

Apheresis desensitization protocols are currently the mainstay of management. Short term ABOi kidney transplantation complications includes: higher risks of antibody-mediated rejection (ABMR), decreased graft and patient survival and infectious complications.

Long-term patient and graft outcomes are comparable between ABOi and ABOc kidney transplant recipients. Innovation regarding A or B to O blood group enzymatic conversion in donor kidneys showed promising results.





Rosana Turcu<sup>1</sup>, Victor Zota<sup>1</sup>

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the country and at the European level.

With the professionalization of transplant coordination in Spain in 1992, it became obvious that the secret to every successful transplant system is transplant coordination, more specifically, the activity of these coordinators. In Romania, after 1997 and 1998, when the first 2 coordinators were internationally trained, the transplant activity started to develop, and, although it had modest results initially, it grew spectacularly with the establishment of the National Transplant Agency.

National Transplant Agency adopted the Spanish transplant model in Romania, another turning point being the elaboration of the Action Plan by the European Commission for Member States.

Romania was the third country to present its Action Plan, a consequence of which was the appearance in 2012 of the Ministry of Health Order no. 1246/2012 on the institutionalization of transplant coordination. 2013-2015 were the glory years of transplant coordination in Romania, the results being unanimously appreciated in

Starting with the summer of 2016, the transplant activity in Romania entered a declining phase, practically no longer receiving support from anywhere.





#### Anatomical variants of hepatic arterial vascularity during multiorgan sampling

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Introduction: Anatomical variants of hepatic arterial vascularization are frequently encountered during multiorgan procurement and are of crucial importance in transplant medicine and hepatic surgery. These variants can significantly influence the planning and execution of surgical interventions, as well as the success of transplants. Out of 100 braindead patients from whom the liver was procured at Clinic II Surgery, Sf. Spiridon Hospital, Iași, 20% presented anatomical variants: 9 patients with the left hepatic artery originating from the left gastric artery, 6 with the right hepatic artery originating from the superior mesenteric artery, 3 with dual variants, and 2 with the common hepatic artery originating from the superior mesenteric artery.

The objective and purpose of this paper is to understand these variants for the correct procurement of organs and to guide towards a detailed understanding of these vascular anatomical variants, thereby reducing complications and improving postoperative prognosis in liver transplantation and other surgical interventions.

Material and Methods: These were composed based on international studies and data from specialized literature, including cases identified during liver procurement, which consist of 100 cases of whole liver procurement from braindead donors.

Results: The results of this work highlight the importance of identifying rare variants that may be encountered during liver procurement and transplantation, enabling their rapid resolution and minimizing the risk of them going unrecognized in the future.

Conclusion: Early detection and surgical management of these anatomical variants of hepatic arterial vascularization are imperative to prevent graft compromise and to successfully perform liver transplantation.





#### Undesigned arterial concerns in liver grafts: surgical approach and detailed analysis

David Ovidiu Buescu<sup>1,2</sup>, Ciprian Vasiluță<sup>1</sup>, Mhai Zabara<sup>1,2</sup>, Ana Maria Trofin<sup>1,2</sup>, Ramona Cadar<sup>1,2</sup>, Alexandru Năstase<sup>1,2</sup>, Vlad Nuțu<sup>1,2</sup>, Corina Lupașcu-Ursulescu<sup>1,2</sup>, Cristian Lupașcu<sup>1,2</sup> <sup>1</sup>"Sf. Spiridon" County Clinical Emergency Hospital, Iași, Romania <sup>2</sup>"Grigore T. Popa" University of Medicine and Pharmacy, Iași, Romania

Introduction: Undesigned arterial concerns in liver grafts present a significant challenge in liver transplantation, influencing both surgical strategies and graft outcomes. Variants in hepatic arterial anatomy, including aberrant or accessory arteries, can complicate the processes of procurement and transplantation. The objectives of this work are to examine the impact of these arterial anomalies on surgical techniques and the strategies employed to address and repair them. Through a detailed analysis of cases involving undesigned arterial variants, we emphasize the critical importance of preoperative imaging and intraoperative adaptability. We review the surgical approaches used to manage these anomalies effectively, aiming to minimize complications and optimize graft viability. By exploring these issues, we seek to enhance understanding and improve surgical outcomes in liver transplantation, ultimately contributing to better prognoses and successful graft function. Addressing these issues requires a well-coordinated multidisciplinary team, including surgeons, radiologists, and anesthesiologists, to ensure efficient management tailored to each patient's specific needs.

Material and Methods: These were composed based on international studies and specialized literature, including cases identified during liver procurement and transplantation performed at Clinic II Surgery, Sf. Spiridon Hospital, Iași.

Results: The results of this work highlight the importance of identifying undesigned problems encountered during liver procurement and transplantation, with rapid resolution improving transplant success rates, minimizing postoperative complications, and enhancing interdisciplinary collaboration.

Conclusion: Early detection and surgical management of these undesigned arterial anatomical issues are imperative to prevent graft compromise and ensure successful liver transplantation.





#### Liver transplantation for rare primary hepatic tumors

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Background: The first cases of liver transplantation (LT) reported were performed for liver tumors. A liver malignancy seems the perfect indication for liver replacement because LT allows the most radical intervention. LT as an option in patients with unresectable liver tumor with diffuse localization or advanced hepatic disease, if there is a risk of post-operative liver failure and in cases of disease recurrence after liver resection (salvage transplantation).

Aim and methods: The present study aims to describe liver transplantation for non-hepatocellular carcinoma (HCC) malignancy. A retrospective analysis of all patients who received a liver transplant for non HCC liver tumors between 2000 and 2023 was performed

Results: Thirteen patients (54% women) were transplanted for rare primary hepatic tumors. The most frequent indication was epithelioid haemangioendothelioma (five patients) and hepatoblatoma (four patients). Two patients were transplanted for severe Kasabach-Merritt syndrome due to extensive liver hemangiomas with very good prognosis. Four patients developed early tumor recurrence in the first year after liver transplant. Two patients transplanted for epithelioid haemangioendothelioma developed a very aggressive recurrence which raised questions over the differential diagnosis with angiosarcoma. Overall survival was 76.9% and 54.9% at one year and 5 years respectively.

Conclusion: Hepatoblastoma and epithelioid haemangioendothelioma are excellent indications for LT, allowing longtime survival even in the presence of extrahepatic disease. LT is exceptionally indicated in case of giant haemangioma and clinically relevant Kasabach-Merritt syndrome, with excellent prognosis. The indications for LT for non-HCC malignancy have evolved over the past decades and will continue to be redefined.





#### Triple panel screening for HBV hepatitis: a must for (liver) transplantation

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Background and aim: Given the high risk of HBV reactivation in the case of HBc antibody positivity in a transplant recipient, our study aims to estimate the prevalence of IAHBc on the waiting list for liver transplantation and to identify the risk factors associated with antiHBc positivity.

Methods: In our retrospective unicentric study, all HBsAg negative adult patients, listed between 1st of January 2021 and 31st of December 2022 for liver transplantation were included. Statistics was performed using SPSS IBM Statistics 29.

Results: 87 patients were included, with mean age  $52.82 \pm 10.179$  years, 60.9% were male and 60.4% of the patients were coming from the urban area. In 88.4% of the cases, cirrhosis was the main indication for liver transplantation, with alcohol-related disease in 48.7% of them and HCV in 19.5%. HCC was seen in 25.3% of the patients and MELD, MELD Na and MELD 3.0 were above 15. 83.9% of the patients were screened for HBc antibodies, 13.8% were found to be positive: 10.35% with HBsAb + and 3.45% without HBsAb (IAHBc). Only 6.85% of the patients had immunity from vaccination (HBc antibodies -). In terms of risk factors, patients with HBcAb were coming in a higher percentage from the urban area (p=0.021) and an association of HBcAb and HCC was observed (p=0.043).

Conclusion: Our study emphasizes the importance of triple panel screening for HBV infection in organ transplantation, given its high prevalence and the need for individualized management, according to the viral markers of the donor/recipient.





#### Mycobacterium tuberculosis in a liver transplant recipient-a challenging occurrence

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Infection with Mycobacterium tuberculosis has an increased incidence among solid organ recipients. Because of immunosuppressants, the clinical presentation is often atypical. Prompt therapeutic intervention is necessary due to the high mortality and morbidity rates within this patient group.

Presented here is the case of a 56-year-old female patient with a history of viral cirrhosis, who underwent an orthotopic liver transplant in October 2023. Although the initial post-transplant evolution was favourable, she presented in January with persistent febrile syndrome, significant weight loss and nonspecific abdominal pain. Clinically, serocitrin fluid extravasation was observed at the laparotomy site; biologically, the patient presented with significant inflammatory syndrome, severe lymphopenia, moderate anemic syndrome and a slight increase in tumour markers.

Imaging investigations revealed necrotic-centred and confluent lymphadenopathies in the pulmonary and subdiaphragmatic fields, suggestive of pulmonary and ganglionic tuberculosis. The differential diagnosis considered peritoneal carcinomatosis and post-transplant lymphoproliferative disorder. It is worth noting that the Quantiferon test performed before the transplant was negative. Secretions collected from the laparotomy site detected the presence of acid-fast bacilli upon microbiological examination and the GenXpert PCR exam of the patient's sputum detected a high titre of Koch bacilli.

Management of tuberculosis in transplanted patients presents several challenges. Calcineurin inhibitor doses need constant adjustment due to pharmacokinetic interactions with antituberculosis agents. The hepatic allograft must be monitored for potential drug toxicities. After six months of concomitant immunosuppressants and antituberculosis agents, the patient showed a significant reduction of the pulmonary and abdominal lymphadenopathies on imagining investigations.







#### Prognostic value of Neutrophil to Lymphocyte ratio in predicting mortality among diabetic patients listed for liver transplantation

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Introduction: Diabetic patients on the liver transplant waiting list face unique challenges and higher mortality rates. Identifying reliable prognostic markers is crucial for optimizing patient care and improving outcomes in this high-risk population. This study seeks to bridge this gap by evaluating the NLR as a potential prognostic indicator in diabetic patients awaiting liver transplantation.

Material and method: A retrospective analysis was conducted on 133 patients listed for liver transplantation between January 2021 and December 2023. Demographic, clinical, and laboratory data were collected, including NLR calculated from pre-transplant blood samples. Data was analyzed using IBM SPSS Statistics version 29.0.2.0.

Results: Most of the patients were males (69,9%) with a median age of 51.9, the most common ethiology of liver cirrhosis being alcoholic (36.1%) and 33.8% (45 patients) associated HCC at the moment of listing. 21.8% (29 patients) of the newly included patients on the liver transplant waiting list were diabetics and 14,28% (19 patients) were obese. A higher NLR was significantly associated with increased mortality risk, with a hazard ratio of 1.19 (95% confidence interval: [1.043-1.194], p = 0.001).

Conclusion: Our findings suggest that NLR may serve as a valuable prognostic tool for risk stratification of diabetic patients awaiting liver transplantation. Further prospective studies are warranted to validate these findings and explore the underlying mechanisms linking NLR and mortality, especially in the setting of increasing proportion of patients with metabolic features. Incorporating NLR into routine risk assessment protocols may improve patient management and allocation of transplant resources.





#### Positive colonization in Romanian candidates for liver transplantation

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Introduction: In cirrhotic patients, a bacteriological screening should be performed, in order to diagnose active infections and to adjust antibiotic treatment. Positive colonization can predispose patients to active infections. Materials and methods: This is a retrospective observational cohort study that analyzed data from 155 patients included on the waiting list (WL) for liver transplantation (LT) between January 1, 2018 – December 31, 2023. We analyzed: demographic, biochemical parameters, active infections, positive swabs (pharyngeal, rectal, nasal) using ROC curve and chi-squared test.

Results: From 155 patients, 105 were male (67.74%), with a median age of  $54 \pm 11,12$  years. Viral hepatitis B + delta was the predominant etiology (36.77%). 29.67% had an episode of ACLF, from grade 1 to 3. Positive swabs were found 49.67% of cases, with rectal colonization in 32.46 %, nasal colonization in 48.05% and positive pharyngeal swabs in 62.33%. Most frequent infections were: spontaneous bacterial peritonitis (SBP) in 24 patients (15.48%), urinary infections (14.83%), pneumonia (12.25%). A serum level of C reactive protein (CRP) >7.1 mg/dl was found with a sensitivity of 95% and a specificity of 50.79% in patients with positive rectal swab (p=0.0006, area under the ROC curve = 0.676). SBP was associated with positive rectal swab in patients with CRP levels >7.1 mg/dl (p=0.0155). Liver transplantation was performed in 58.7% of cases and 28 patients died LT.

Conclusions: Positive rectal swabs can be important in the management of cirrhotic patients and antibiotic treatment may be guided according to the isolated bacteria.





#### Clostridioides difficile-associated colitis following liver transplantation

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Introduction: Following liver transplantation (LT), Clostridioides difficile colitis (CDC) is still a major and frequent complication. The aim of this study was to evaluate the frequency of CDC in patients after liver transplantation.

Material and methods: At our center, 56 LTs were performed between 2016 and 2024. The usual combination of immunosuppression included mycophenolate, tacrolimus or sirolimus, and in some patients corticotherapy. Using an enzyme immunoassay or fast immunoassay, CD toxins A and B were determined.

Results: CDC was diagnosed in 12 patients, of them, 10 (83.3%) developed the disease during the first year of followup after LT; two patients developed CDC more than three years after LT, one of whom also had an early episode of CDC. The most frequent symptoms were watery diarrhea and abdominal pain. Patients with hemorrhagic, biliary, or infectious complications were significantly more prone to develop CDC within a year after LT. The model end-stage liver disease score was considerably higher in those who developed CDC within 28 days post-LT. Vancomycin, hydration and electrolyte replacement were used to treat the patients; none of them developed toxic megacolon, needed colonic resection, or died from CDC.

Conclusions: A potentially serious side effect after LT is CDC. Most cases start soon after LT. Association of biliary, infectious, or hemorrhagic complication is linked to CDC.





#### Post-transplant hepatic steatosis

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Introduction: Recurrent or de novo steatotic liver disease (SLD) following liver transplantation (LT) is a rising concern among liver transplant recipients We aimed to determine the prevalence of de novo steatosis and metabolic dysfunction-associated fatty liver disease (MAFLD) after LT.

Materials and methods: Transient elastography assessment for liver stiffness and controlled attenuation parameter (CAP) were performed after LT in 32 patients at median time of 52 months from LT. CAP was compared with implant liver biopsy. Longitudinal history including diabetes mellitus (DM), dyslipidemia, hypertension, and immunosuppressive regimen were recorded.

Results: Seventeen patients (53.1%) developed hepatic de novo hepatic steatosis after liver transplantation. After multivariate analysis, BMI (HR 2.64), DM (HR 2.86), HDL-cholesterol (HR 0.15), and LDL-cholesterol (HR 1.82) were associated with the development of S2/3 graft steatosis. De novo NAFLD was associated with higher incidence of new-onset hypertension (p < 0.001), graft dysfunction (defined as ALT > 40 U/L; p = 0.012), but not associated with advanced graft fibrosis (defined as liver stiffness > 9.5 kPa; p = 0.401).

Conclusion: Post liver transplant de novo graft steatosis was common in our patients. Development of graft steatosis was not associated with an increase in graft fibrosis but was associated with worse metabolic control and graft dysfunction. Routine CAP measurement to detect de novo graft steatosis should be considered after LT regardless of the primary indication of LT.





### Results of combined prophylaxis in preventing hepatitis B virus recurrence in liver transplant recipients – insights of a single-center experience

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Introduction: Hepatitis B virus (HBV) recurrence after liver transplantation (LT) is a major concern, risking graft failure and mortality. Optimal prophylaxis strategy is still debatable. We aimed to assess the efficacy and safety of the combined prohylactic strategy in preventing HBV recurrence after LT.

Materials and methods: We conducted a retrospective study on twenty-two liver transplant recipients, followed between 2016 and 2024. All patients had history of hepatitis B virus (HBV) infection prior to transplantation, and received a combined prophylaxis regimen, with anti-HB imunoglobulines (HBIg) and nucleoside/nucleotide analogues after transplantation. Pre-transplant HBV viral load, immunosuppressive regimen, and post-transplantation follow-up data were collected. Virological outcomes were evaluated through regular assessments of anti-HBs antibody titers, HBs Ag and HBV-DNA levels. Additionally, graft function assessments were performed at routine intervals.

Results: Among the 22 liver transplant recipients, 16 had undetectable HBV-DNA levels at transplantation. All patients received combined prophylaxis consisting in intravenous HBIg during the anhepatic phase and initial months after transplantation, followed by subcutaneous HBIg, combined with oral nucleoside/nucleotide analogues. No HBV recurrence was observed during follow-up (2-92 months). Serological and virological assessments remained negative for HBV, with protective anti-HBs levels. Liver function tests showed preserved graft function in all cases. No adverse events were recorded.

Conclusions: Our findings underscore the excellent efficacy and safety of the combined prophylactic regimen in preventing HBV recurrence following LT. However, the drawbacks are the financial burden and the need for long-term patient adherence. Overcoming these challenges may involve personalized approaches tailored on individual risk factors.







#### The benefit-risk ratio of immunosuppressive therapy in a liver transplant recipient: a case report

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Liver transplantation is a highly successful treatment for end-stage liver disease. With prolonged survival, transplant recipients often face long-term complications from immunosuppressive therapy or develop other conditions that are more difficult to manage.

We present the case of a 65-year-old patient who underwent liver transplantation six years ago for alcohol-associated cirrhosis. Before the transplant, he was diagnosed with mild mitral regurgitation. The induction immunosuppression agent was basiliximab, followed by tacrolimus and mycophenolate mofetil. After the transplant, the patient developed severe mitral regurgitation, and biological mitral valve replacement was performed. Three months later, he was hospitalized with vertigo, suspected of a transient ischemic attack. Carotid atherosclerosis and bilateral cortico-subcortical brain lesions were identified. Two years later, he experienced vomiting, loss of consciousness, and retrograde amnesia. Cognitive evaluation showed a mild deficit. He also presented with acute prostatitis and orchiepididymitis, which resolved with antibiotics.

Later, he was hospitalized for transient aphasia and motor deficit. An inflammatory syndrome was detected, along with ischemic lesions of cardioembolic appearance, an 8/5 mm vegetation on the mitral valve, and blood cultures positive for coagulase-positive staphylococcus, leading to a diagnosis of acute infectious endocarditis, treated with antibiotics.

Follow-up revealed resorption of the valvular vegetation and normalized inflammatory markers. Currently, the patient has no cognitive or motor deficits. We consider this a complex case with multiple infectious and neurological complications, due to drug toxicity and adverse effects, which are more difficult to diagnose and treat when permanent immunosuppression is required to maintain graft viability.







#### Long-term outcomes of HBV and HDV coinfection in liver transplant recipients in Romania

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Background: Coinfection with HBV and HDV precipitates the most aggressive form of viral hepatitis, leading to accelerated liver damage and an increased incidence of hepatocellular carcinoma (HCC). In Romania, this dual infection is the principal reason for liver transplantation (LT).

Methods: A retrospective evaluation was performed on 236 consecutive patients (59.52% males, median age 59 years) who received LT for HBV/HDV-related cirrhosis at our center over the last ten years.

Results: At transplantation, 35.2% of the cohort was diagnosed with HCC, 72.3% of whom were within the Milan criteria. Before LT, HDV viral loads were detectable in 84.8% of patients, and HBV viral loads in 64.2%. There was no significant difference in pre-transplant HDV RNA levels or HBsAg quantitative titers between those with or without HCC. However, the HBV DNA levels were significantly lower in the HCC group (p=0.05). Only 15.3% had received NUCs prior to LT. The median HBsAb titer at one-year post-transplant was 122 IU/mL, showing no significant variance between the HCC and non-HCC groups over time. Survival rates post-transplant were 89.5% at one year, 85% at 5 years, and 83% at 10 years. HCC recurred in 11.6% of patients, while HBsAg reappeared in only 1.3% of patients. There was no recurrence of HBV alone or HDV. Patients outside the Milan criteria had higher rates of recurrence (21.4% vs 16.3%, p=NS).

Conclusion: The results underscore the efficacy of current post-transplant protocols in managing patients with HBV/HDV coinfection, demonstrated by high survival rates and low recurrence of HCC.





Use of hepatitis C-positive liver grafts in hepatitis B related-HCC liver recipients – the experience from a liver transplant center in Romania

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The use of organs from hepatitis C virus (HCV)-viremic donors is becoming increasingly common due to the significant disparity between the number of patients in need of organ transplants and the availability of suitable donor organs. Historically, organs from HCV-viremic donors were either used in recipients who already had chronic hepatitis C or were discarded because of concerns over transmitting the virus. However, several factors have contributed to a shift in this practice, making using HCV-viremic organs more widespread and acceptable.

We present the case of a 64-year-old male patient who was diagnosed with multinodular hepatocellular carcinoma on a background of liver cirrhosis caused by hepatitis B virus (HBV). Over four years, the patient underwent interventional treatments, including three sessions of TACE with a DEB DOX protocol, followed by one session of radiofrequency ablation. Subsequently, the patient underwent an orthotopic liver transplant using a whole liver (marginal graft with HCV) from a donor in brain death. Post-transplant, the patient received antiviral therapy with Harvoni (Ledipasvir-Sofosbuvir), with favorable progress and undetectable viremia one year after liver transplantation.





Long-term outcomes and recurrence risk in patients with primary sclerosing cholangitis undergoing liver transplantation in Romania

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Primary sclerosing cholangitis (PSC) is a chronic progressive cholestatic liver disease with a poor prognosis, often necessitating liver transplantation (LT). Post-LT recurrence of PSC (rPSC) and mortality remain significant challenges. We conducted a single-center, observational, retrospective study involving 113 patients diagnosed with PSC at our clinic from 2005 to 2023.

The cohort included 55% females, with a median age at diagnosis of 44 years. The age at LT was significantly younger, at a median of 34.5 years (IQR 26-41.5). A total of 29.2% had an associated inflammatory bowel disease (IBD), with 63.6% having ulcerative colitis and 36.4% Crohn's disease. Of the patients, 92% (104/113) had PSC affecting large bile ducts, 9.7% (11) had an overlap syndrome with autoimmune hepatitis (AIH), and 3.5% (4) with primary biliary cholangitis (PBC). The average duration from study inclusion to LT was 33.45 months, with a post-LT follow-up of 65.33 months. Prognostic assessments using the Mayo Risk Score (MRS), Amsterdam-Oxford Model (AOM), and Model for End-Stage Liver Disease-Sodium (MELDNa) demonstrated significantly higher values in transplanted patients (MRS: 1.07 vs 0.21, AOM: 2.37 vs. 1.86; MELDNa: 13.91 vs 10.04, p<0.01). Among LT recipients, 25% (6/24) developed rPSC. The presence of an overlap syndrome with AIH was the only significant predictor of recurrence (p=0.04).

Our findings corroborate existing data on the rates of post-LT rPSC. Notably, an overlap syndrome with AIH significantly predicts PSC recurrence, underscoring the need for targeted monitoring and management strategies in this subgroup.





#### Median arcuate ligament compression-an achilleas knee for hepatic artery flow during liver transplantation

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The median arcuate ligament (MAL) often causes stenosis of the celiac trunk (CT), impairing blood flow through the CT and its branches, especially when combined with a high aortic origin of the CT. This condition, which occurs in 12-55% of the general population and 2-12% of liver transplant (LT) patients, reduces hepatic artery (HA) velocity during expiration, compromising arterial blood flow crucial for LT. Diagnosing MAL involves preoperative imaging showing CT origin stenosis without vascular calcifications. Optimal surgical approaches to ensure vascular inflow in LT patients with MAL include MAL release, HA reconstruction, aorto-celiac bypass, and radiologic stenting, though reports on the best strategies in LT patients are scarce.

Methods: We retrospectively reviewed eight cases of CT compression by MAL identified via celio-mesenteric angio-CT, undergoing orthotopic liver transplantation (OLT) from September 2017 to September 2022.

Results: In three cases, standard HA anastomosis followed by MAL release was performed, but intraoperative Doppler showed insufficient flow. Two cases preserved flow from the gastroduodenal artery, performing HA reconstruction on the recipient's proper HA bifurcation. Three cases required an arterial aorto-celiac jump graft using a cadaveric graft. Excellent HA flow was restored in all cases without postoperative complications.

Discussion, Conclusion: Preoperative imaging at end-inspiration aids MAL diagnosis. The "hooked" CT appearance on sagittal reconstruction is highly suggestive of MAL. MAL is underreported in OLT, with severe implications for liver grafts. Accurate preoperative diagnosis or high suspicion of MAL should prompt a stepwise OLT approach to ensure optimal graft vascular supply and prevent graft loss.





#### Innovations and challenges in living-donor liver transplantation

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Living-donor liver transplantation (LDLT) is essential due to the critical shortage of available organs. This study aims to evaluate the innovations and challenges in LDLT to improve outcomes for both donors and recipients. The primary objective is to assess the impact of advanced imaging technologies and minimally invasive techniques on the success and safety of LDLT.

Materials and methods include a comprehensive review of recent advancements in 3D imaging and printing technologies, as well as the application of virtual resection and real-time navigation during hepatic surgery. Data was collected from clinical trials, surgical case studies, and retrospective analyses of LDLT procedures incorporating these innovations. Additionally, the study examines the effectiveness of robotic surgery and fluorescence techniques in reducing intraoperative complications and recovery times.

Results indicate that 3D imaging and printing technologies have significantly enhanced the precision of graft selection, leading to better surgical outcomes. The use of virtual resection and real-time navigation has optimized surgical strategies, minimized risks, and improved patient outcomes. Robotic surgery and fluorescence techniques have reduced recovery times, improved precision in preserving collateral and communicating veins, and decreased blood loss during surgery. These advancements have collectively contributed to safer and more effective LDLT procedures.

In conclusion, the integration of advanced imaging technologies and minimally invasive techniques in LDLT has markedly improved the success and safety of the procedure. The study highlights the importance of continuous technological advancements in maintaining the viability and efficiency of LDLT.





#### D-HOPE in liver transplantation

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Background: Machine perfusion has emerged as a promising preservation technique aimed at enhancing outcomes following transplantation. Two primary approaches, normothermic machine perfusion (NMP) and hypothermic machine perfusion (HMP), focus on restoring oxygen supply to ischemic tissues.

Methods: HMP is a more straightforward technique employed after cold storage at the recipient center. During reoxygenation, mitochondrial function plays a crucial role in triggering the inflammatory cascade associated with ischemia-reperfusion injury (IRI), although this response is less pronounced under cold conditions. D-HOPE (dual hypothermic oxygenated perfusion) promotes functional recovery of the respiratory chain and the Krebs cycle, facilitating cellular energy replenishment and detoxification of harmful metabolites such as succinate.

Results: Recent randomized controlled trials have substantiated the protective effects of hypothermic oxygenated perfusion (HOPE), indicating reduced organ injury, decreased complications (including non-anastomotic biliary strictures), lower acute rejection rates, and improved graft survival. The simplicity of HOPE, particularly when administered solely through the portal vein, allows for liver splitting during perfusion with minimized risk of arterial injury. Furthermore, advancements in real-time spectroscopy have enabled the assessment of liver viability during HMP, with perfused levels of flavine mononucleotide (FMN), released from complex I during reperfusion, correlating with post-transplant complications and graft survival.

Conclusions: This presentation explores the various advantages of D-HOPE, highlighting its benefits, the emerging evidence supporting its use, and addressing the challenges that remain for this advantageous preservation method in liver transplantation.





#### The intricacies of unexpected erythrocytosis after liver transplantation: a case report

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Erythrocytosis in liver recipients after orthotopic liver transplantation (OLT) can be defined as an increase in the red cell mass >125%, with the condition of no pre-OLT history of erythrocytosis. Elevated values of haematocrit (Hct) can lead to thromboembolic events, graft failure or even death.

We present the case of a 53 years old OLT recipient with no prior history of erythrocytosis. After transplant, the patient developed a series of complications such as biliary anastomosis stenosis, multiple episodes of angiocholitis, chronic kidney disease due to numerous thrombotic events that led to the infarction of the right kidney. The persistent elevated Hct values and thrombotic events raised the suspicion of a myeloproliferative neoplasm. Multiple bone marrow exams have been performed but they showed only myeloid hyperplasia. Molecular biology revealed the presence of the MTHFR mutation, a positive CAL-R type I status but the JAK2 V617F mutation was not detected. Even though the major diagnostic criteria were not met, cytoreductive treatment was started once the patient also presented with leukocytosis and thrombocytosis. Due to the numerous thrombotic events a multidisciplinary team decided to start the patient on oral anti vitamin K antagonists and antiplatelet therapy in order to prevent further events.

In conclusion, erythrocytosis in OLT recipients can have an intricate pathogenesis. The differential diagnosis between an acquired post-OLT hypercoagulability state, thrombophilia and an undifferentiated myeloproliferative neoplasm can be a challenging task for physicians, especially in the case of a patient that underwent multiple major infectious complications.





#### Liver graft fibrosis - a long-term threat in an organ recipient: a case report

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Wilson's disease is a rare genetic disorder affecting copper metabolism, characterized by diminished biliary excretion of copper, leading to its accumulation primarily in the liver, as well as in other tissues such as the brain and cornea. Most patients exhibit hepatic involvement, with presentations ranging from asymptomatic elevated liver enzymes to acute liver failure or cirrhosis. In advanced stages of the disease, orthotopic liver transplantation (OLT) serves as the definitive curative treatment.

We report the case of a 33-year-old female patient diagnosed with fulminant acute liver failure secondary to Wilson's disease, necessitating orthotopic liver transplantation for curative purposes. Eight years post-transplant, the patient was diagnosed with an anastomotic biliary stricture, as evidenced by magnetic resonance cholangiopancreatography (MRCP), and subsequently underwent endoscopic biliary stenting. Despite this intervention, the patient presented with elevated bilirubin levels, pronounced cholestasis and hepatic cytolysis syndrome. An endoscopic procedure confirmed choledocholithiasis, which was resolved. However, the patient continued to experience worsening cytolysis and cholestasis. A liver biopsy was conducted under the suspicion of graft rejection.

The biopsy excluded chronic corticosteroid-resistant graft rejection but revealed intra- and periportal collagenous fibrosis without ductopenia, prompting consideration for re-listing the patient for a transplant. As the number of long-term survivors of liver transplantation increases, these patients face new challenges, including graft fibrosis, which can result in graft dysfunction, heightening the risk of mortality or the need for retransplantation.





#### Liver re-transplantation with marginal graft - clinical case

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Introduction: Macrovesicular SH > 30% is an independent risk factor for decreased survival; associated with primary graft nonfunction. The magnitude of the impact on survival remains a matter of discussion.

Objective: impact of liver re-transplantation recipient survival on disease progression

Material and methods: 45-year-old recipient, diagnosed with LC HBV/VHD, st Child Pugh B (9p), MELD Na 20, on the waiting list with LT. On 26.05.2014 performed LT with a living donor, immediately postoperatively developed thrombosis of the hepatic artery. Medical emergency, risk of generalized infection, loss of graft, requires retransplantation (5 days postoperatively), with a graft from a male DCD (59 years old, cytolysis 3N, blood sugar 7.0, macrosteatosis 38% (histological)). First 4 postoperative days the recipient is hemodynamically unstable: primary graft dysfunction (INR 3.8, IP- 25%, ALT- 939.0, AST – 685.0), IR 0.35-0.45, followed by subsequent recovery over 7-8 days, but with the maintenance of the cholestatic syndrome (bilirubin-210.0, mmoll, with the prevalence of the indirect fraction, FA-N, GTP-N), Macrosteatosis, ischemia of the graft favored complications resulting in the development of liver abscess, followed by hospitalizations and repeated treatments in IC, profile section. The patient evaluated biochemically and instrumentally, according to the national LT protocol, with favorable evolution of the disease, survival of more than 10 years at the moment.

Conclusions: LT with marginal graft is a chance of survival in the organ crisis. Appropriate recipient and donor selection will contribute to safe use of these grafts by reducing waiting list mortality, improving access to LT, and increasing survival.

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