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SPECIAL ARTICLE

# VI consensus document by the Spanish Liver Transplantation Society☆

# VI documento de consenso de la sociedad española de trasplante hepático (SETH)

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## Limits of simultaneous liver-kidney transplantation

Simultaneous liver and kidney transplantation (LKT) aims to improve the survival of patients with end-stage liver and kidney disease. There is an acceptable consensus in the indication of simultaneous LKT in patients with decompensated cirrhosis and end-stage renal failure on chronic dialysis. However, both nationally and internationally, there is significant heterogeneity in the criteria for simultaneous LKT when it comes to non-cirrhotic or compensated liver diseases, or for liver transplantation candidates with kidney failure and moderate-severe reduction of the glomerular filtration rate.[1]

The primary objective of this consensus meeting organized by the SETH was to promote discussion and unify criteria for the indication of simultaneous LKT by the liver transplant groups in Spain. Despite the MELD prioritization used by most transplant programs, simultaneous LKT activity has not significantly increased in Spain in the last 6 years (30–35 LKT/year). However, given the shortage of donors and waiting-list mortality, it is still necessary to optimize the use of transplanted organs. The objectives of the meeting regarding simultaneous LKT focused on: a) avoiding liver transplantation (LT) in candidates for kidney transplantation (KT) whose liver prognosis is good; b) avoiding KT in candidates for isolated LT with recoverable acute renal failure; c) defining criteria for rare diseases; and d) achieving patient

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survival with appropriate and equitable treatment intention for all groups.

In order to present the main controversial situations, the following topics of discussion were posed:

1. Candidate for kidney transplant with cirrhosis of the liver and no criteria for liver transplant per se: criteria for simultaneous liver-kidney transplantation
2. Candidate for liver transplant with end-stage chronic kidney disease: criteria for simultaneous liver-kidney transplantation
3. Candidate for liver transplant with acute kidney injury (AKI): criteria for simultaneous liver-kidney transplantation and role of biopsy and non-invasive markers
4. Criteria for simultaneous liver-kidney transplantation in hyperoxaluria and polycystic liver and kidney disease
5. Specific donor criteria for simultaneous liver-kidney transplantation

In each of these 5 blocks, several specific questions were posed and debated before a final vote on the conclusions. Conclusions were established as recommendations when 3/4 of the liver transplant groups were in agreement.

## Candidate for renal transplant with cirrhosis of the liver and no criteria for liver transplant per se: criteria for simultaneous liver-kidney transplantation

Studies about the natural history of chronic liver disease establish criteria for LT for decompensated cirrhosis, especially when there is a decline in liver function. In some patients with advanced chronic liver disease, with no criteria for LT but with criteria for KT, kidney transplantation could significantly accelerate the progression of the liver disease as a consequence of surgery, post-transplant complications and the use of immunosuppression. It was considered acceptable to propose simultaneous LKT for patients with chronic compensated liver disease with a high risk (more than 10%) for presenting criteria of isolated LT in the 3 years following a KT. In the group of patients with compensated cirrhosis, the parameter that best predicts the risk for decompensation of the liver disease is the hepatic venous pressure gradient (HVPG). Specifically, patients with compensated cirrhosis and no clinically significant portal hypertension (HVPG < 10 mmHg) have a probability of decompensation within 4 years below 10%.[2–4]

- In the scenario of patients with end-stage chronic kidney disease who are candidates for RT and present compensated cirrhosis of the liver with good hepatocellular function (Child-Pugh's stage A), in which cases is simultaneous LKT indicated?

**Recommendation 1.** *Simultaneous liver and kidney transplantation is indicated in patients with indication for renal transplant who present liver disease with significant portal hypertension (GVPH ≥ 10 mmHg) or presence of esophageal varices.*

*Evidence/recommendation IIB*

[1]

**Recommendation 2.** *Candidates for simultaneous LKT do not require any additional criteria for prioritization on the waiting list beyond the MELD score.*

*Evidence/recommendation IIIB*

It was discussed whether the esophageal varices were candidates for primary prophylaxis (medium-large, or small with signs of risk). It was specifically established that thrombocytopenia (< 100,000/mm$^3$) or hypoalbuminemia (< 2.8 g/dL) would not be considered criteria for significant portal hypertension per se. The use of non-invasive detection methods (elastography) should be assessed in these patients, although there currently is not sufficient information to be able to include them. Additionally, it was recommended in patients positive for the hepatitis C virus (HCV) to always attempt antiviral treatment before considering LKT, as well as treating the remaining factors that could favor the progression of the liver disease. As for candidates for KT with cirrhosis due to non-alcoholic steatohepatitis, no specific recommendation was established by the work group due to the absence of current evidence.

## Candidate for liver transplant with end-stage chronic kidney disease: criteria for simultaneous liver-kidney transplantation

Chronic kidney disease (CKD) is defined as the presence of chronic kidney structure damage with a glomerular filtration rate (GFR) below 60 mL/min for more than 3 months. Several studies indicate a decrease in survival of isolated LT as the GFR decreases, and there is shorter survival of patients who have undergone isolated LT compared to simultaneous LKT in patients on chronic dialysis. Previous consensus documents about this recommendation were discussed,[3,5,6] and the data support these agreements. Formulas that estimate GFR based on creatinine notably overestimate (up to 30–40%) the actual GFR in patients with cirrhosis and renal function decline.[7] Data from large series of isolated LT demonstrate that the presence of CKD with GFR less than 30 mL/min persistently maintained in the pretransplant phase is associated with a higher risk for terminal CKD and mortality one and 3 years post-transplant.[8,9] Finally, the caseload from 2005–2013 of the United Network for Organ Sharing (UNOS) indicates an 8–10% risk of need for dialysis or kidney transplantation in the first year after isolated LT for recipients with CKD and GFR below 30 mL/min.[10] Finally, predictors for declining renal function, such as proteinuria, diabetes and renal histological data, were evaluated.[8]

- In the scenario of patients with liver transplant criteria who also present CKD (defined as a GFR less than 60 mL/min for more than 3 months), in what cases is simultaneous liver-kidney transplantation considered indicated?

[1] Levels of evidence according to the Centre for Evidence-Based Medicine of Oxford.