Indications for LDLT- do we need to rethink?

UK Living Donor Liver Transplantation (LDLT)
Novotel York
16th September 2025

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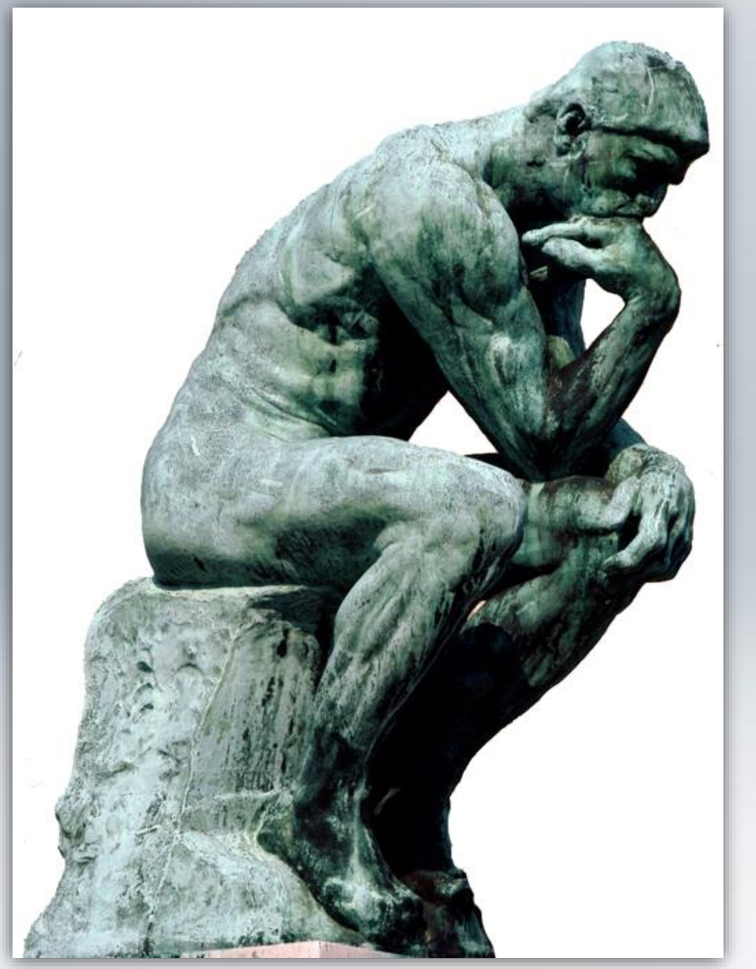

- ***The standard indications remain the same:***
  - ***LDLT and DDLT are performed in patients with irreversible, non-malignant or malignant liver disease where transplantation provides a proven survival benefit.***
  - ***UKELD score for minimal listing, TBS, quality of life, risk of death without LT remain the same.***

BUT THERE CAN BE DIFFERENCES IN APPLICATION!

- **Keep indications the same**
  - Maintains equity.
  - maintains donor risk vs recipient benefit relationship.
  - Lack of incentivisation.
  - Fails to recognise lack of impact on DD organ pool.
- **Change to include patients with low MELD/UKELD but high disease burden**
  - Incentivises LDLT.
  - provides access for patients who are not listed but can benefit from LT.
  - Impacts on equity.
  - Potential exposure of donor to unnecessary risk.
- **Change to include patients beyond normal criteria**
  - Increases access to some patients who would benefit from transplantation.
  - Alters donor risk vs recipient benefit relationship.
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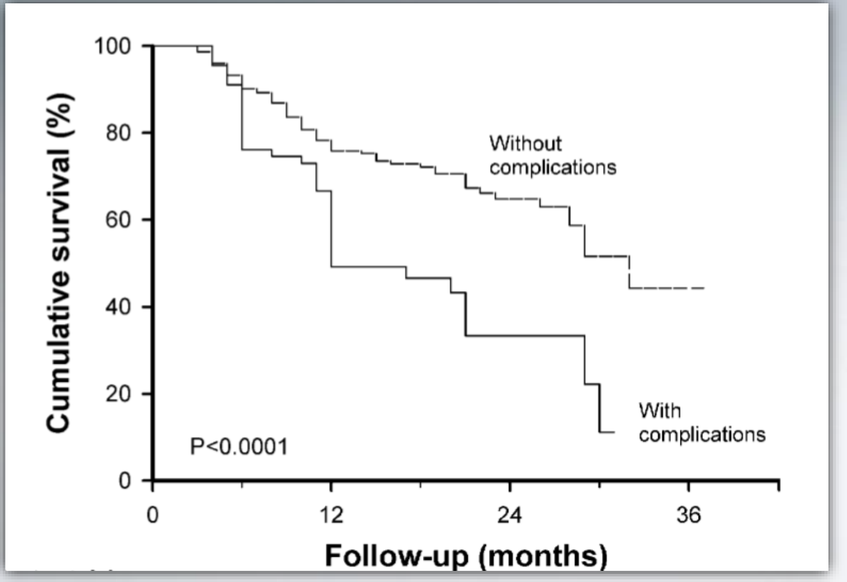
▪ *Change to include patients with low MELD/UKELD but high disease burden*

Table 3. Prognostic predictors predicting the risk of mortality in the multivariate logistic regression analysis

Parameters	Odds ratio	95% confidence interval	p
6-month mortality			
MELD > 12.4[a]	3.6	1.7–29.2	0.001
Complications			
None	1	–	–
One	2.6	1.1–6.2	0.029
≥2	6.4	1.8–22.3	0.004
12-month mortality			
MELD > 14[a]	3.5	1.8–6.5	< 0.001
Complications			
None	1	–	–
One	2.9	1.5–5.6	0.002
≥2	26.7	3.3–218.7	0.002



Huo et al. *Clin. Transpl.* 2006;20:188–194.

- ***MELD underestimates the morbidity associated with advanced cholestatic liver disease.***
- ***Fails to account for disease-specific complications that are impactful on outcome.***
- ***Patients with PBC and PSC find themselves in a version of "MELD purgatory".***
- ***For patients with PBC:*** ***highly symptomatic disease associated with complications of portal hypertension, fatigue, pruritus, and frailty.***
- ***For patients with PSC:*** ***biliary obstruction/infection and malignant risk.***

- ***Change to include patients with low MELD/UKELD but high disease burden***

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Clinical TRANSPLANTATION
The Journal of Clinical and Translational Research
WILEY

ORIGINAL ARTICLE

Excess liver transplant waitlist mortality for patients with primary biliary cholangitis under MELD-Na allocation

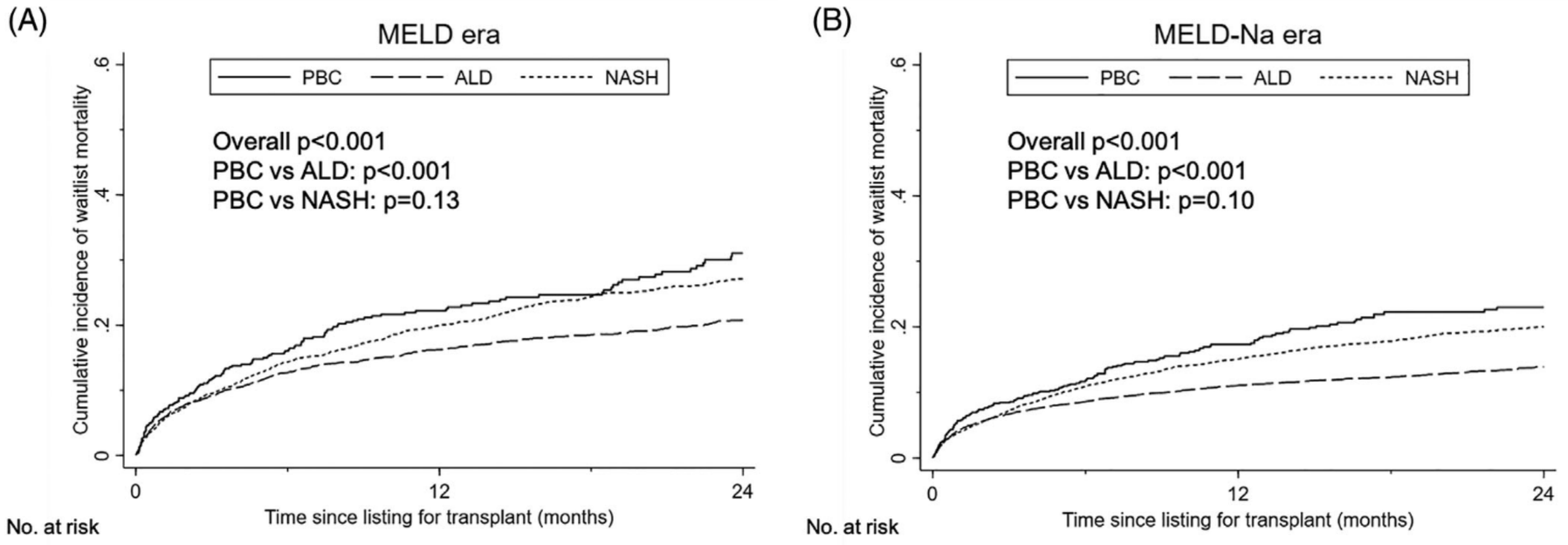
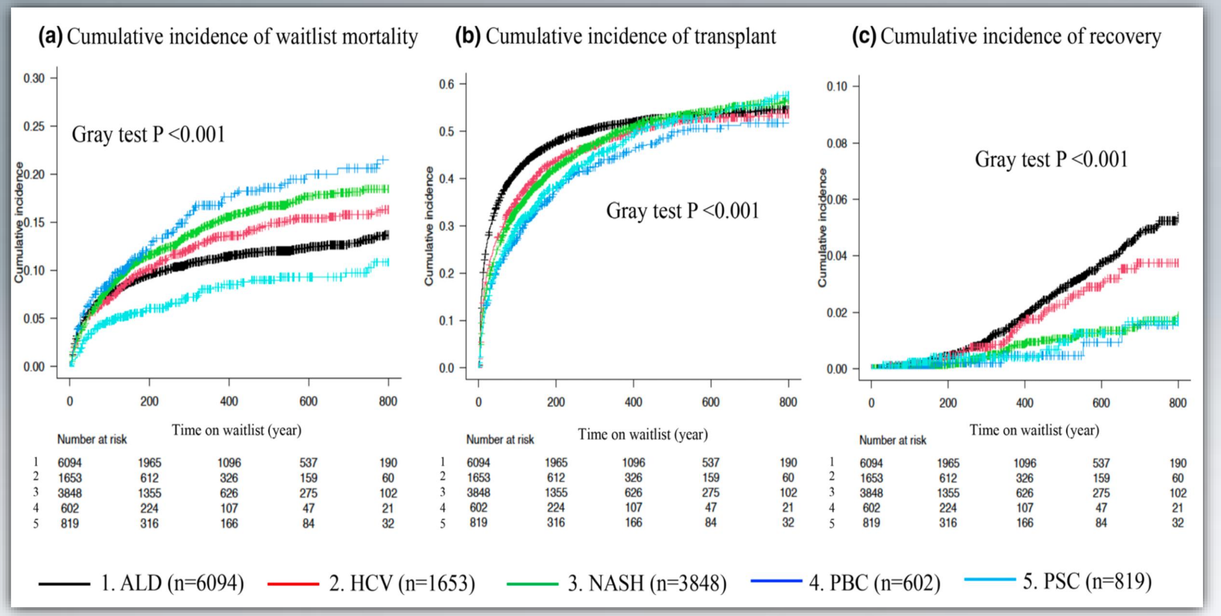


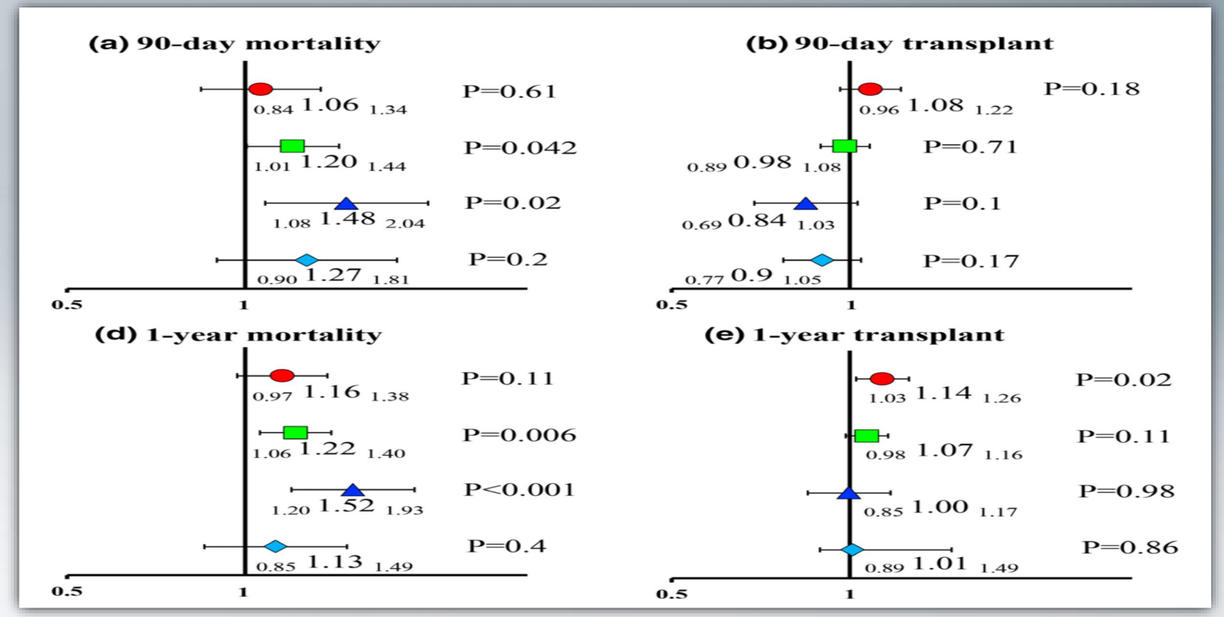
FIGURE 1 Cumulative incidence of waitlist mortality for patients listed for liver transplantation with PBC, ALD, or NASH in the (A) MELD and (B) MELD-Na eras

ORIGINAL ARTICLE

Disease-specific waitlist outcomes in liver transplantation – a retrospective study

Shunji Nagai[1]*, Mohamed Safwan[1]*, Toshihiro Kitajima[1], Sirisha Yeddula[1], Marwan Abouljoud[1] & Dilip Moonka[2]





Transplant International 2021; 34: 499–513

- *Change to include patients with low MELD/UKELD but high disease burden*

Pre-Transplant

Highly symptomatic: jaundice, pruritus, fatigue, sarcopenia
Exception points possible for severe symptoms: pruritus, recurrent cholangitis

PBC

- Higher waitlist mortality compared to other etiologies of liver disease
- Higher waitlist drop-out
- Complications of severe portal hypertension
- Alternate risk stratification scores: Mayo Risk Score, GLOBE, UK-PBC

PSC

- Symptoms associated with recurrent cholangitis & biliary obstruction
- Ongoing malignancy risk: CRC, GBC, CCA
- Alternate risk stratification scores: revised Mayo Risk Score, Amsterdam-Oxford score, UK-PSC

Hepatology. 2025;00:000–000.

Journal of
Clinical Medicine

MDPI

Article

Two Decades of Liver Transplants for Primary Biliary Cholangitis: A Comparative Study of Living Donors vs. Deceased Donor Liver Transplantations

Esli Medina-Morales [1,2], Mohamed Ismail [1], Romelia Barba Bernal [2,3], Yazan Abboud [1], Leandro Sierra [2], Ana Marenco-Flores [2], Daniela Goyes [4], Behnam Saberi [2], Vilas Patwardhan [2] and Alan Bonder [2,*]

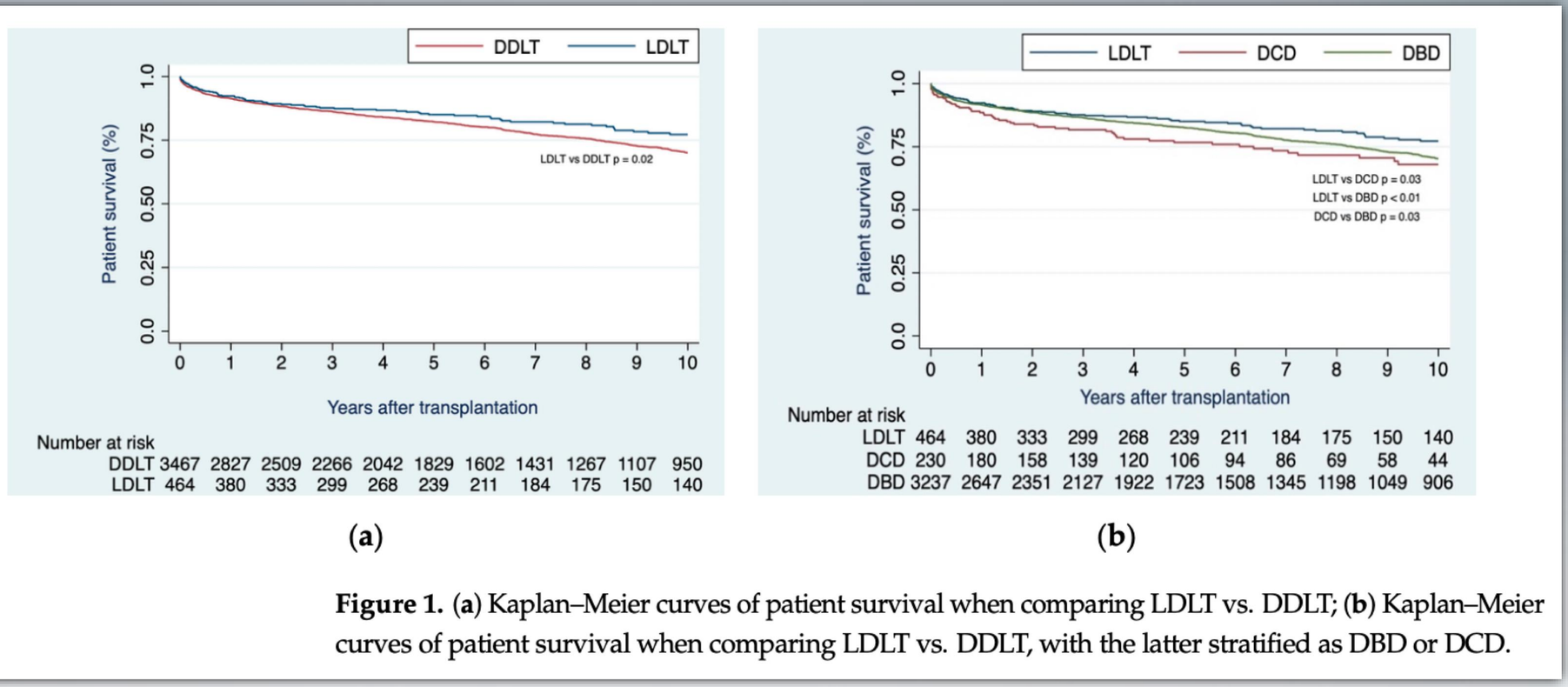


Figure 1. (**a**) Kaplan–Meier curves of patient survival when comparing LDLT vs. DDLT; (**b**) Kaplan–Meier curves of patient survival when comparing LDLT vs. DDLT, with the latter stratified as DBD or DCD.

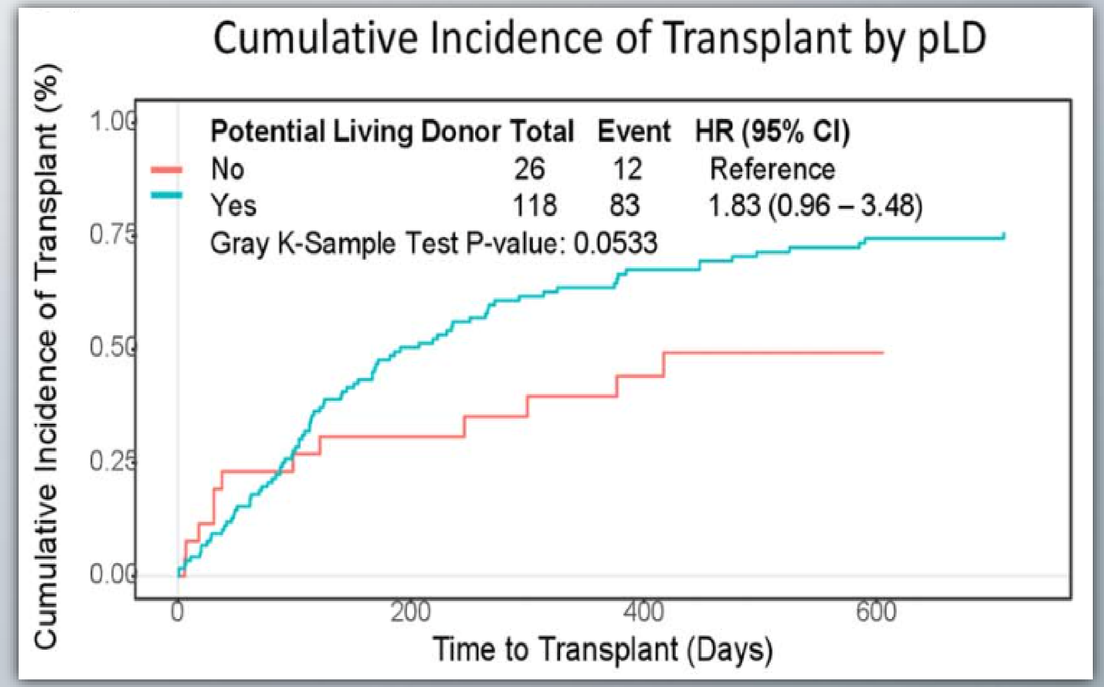
Received: 4 January 2023 | Accepted: 4 May 2023

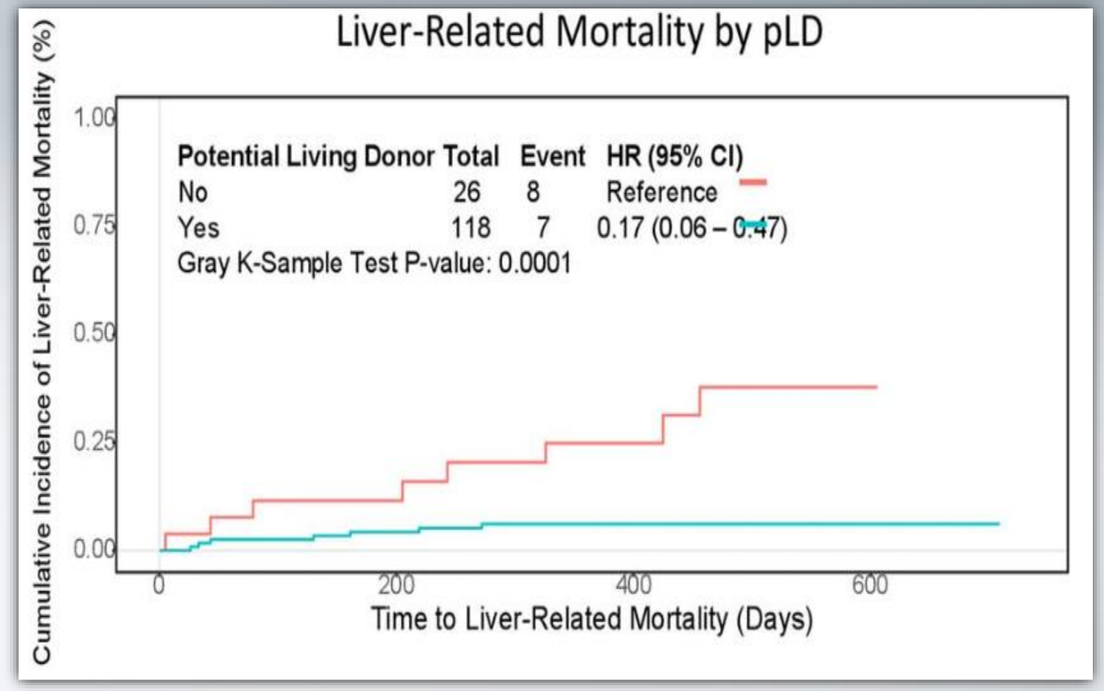
DOI: 10.1097/HC9.0000000000000219

ORIGINAL ARTICLE

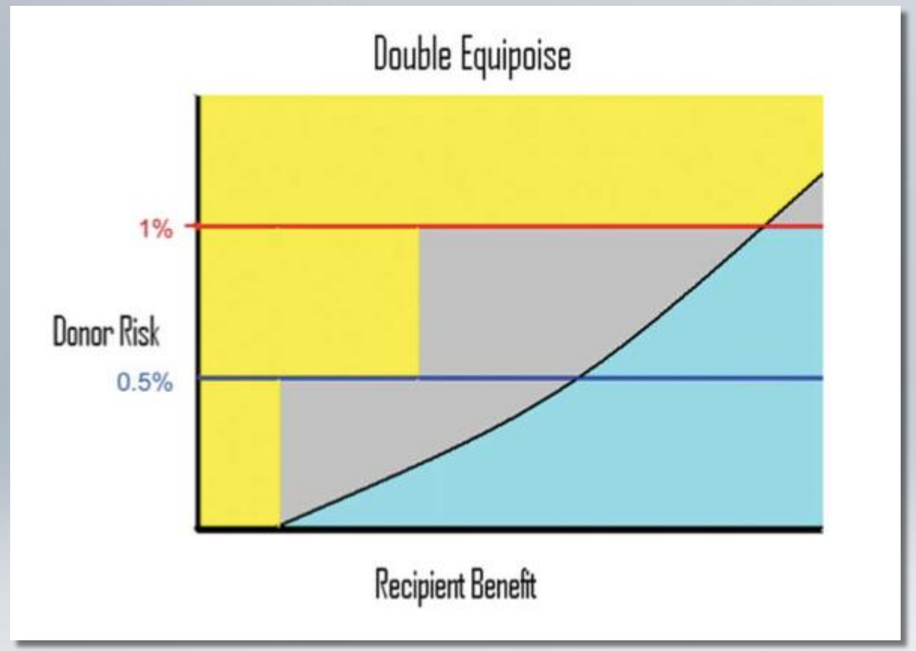
OPEN

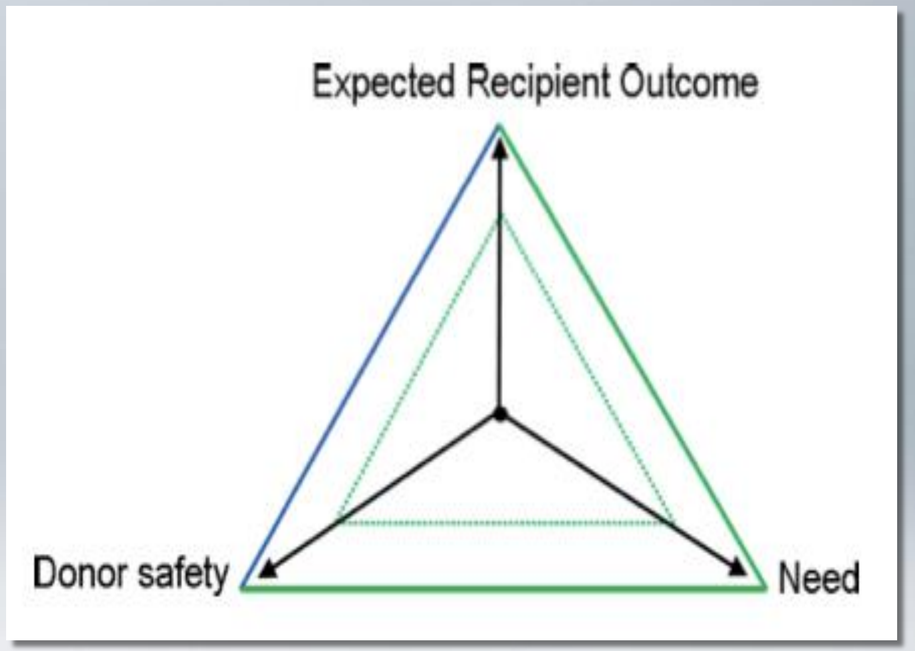
Living donor liver transplantation can address disparities in transplant access for patients with primary sclerosing cholangitis





Demonstrable Need





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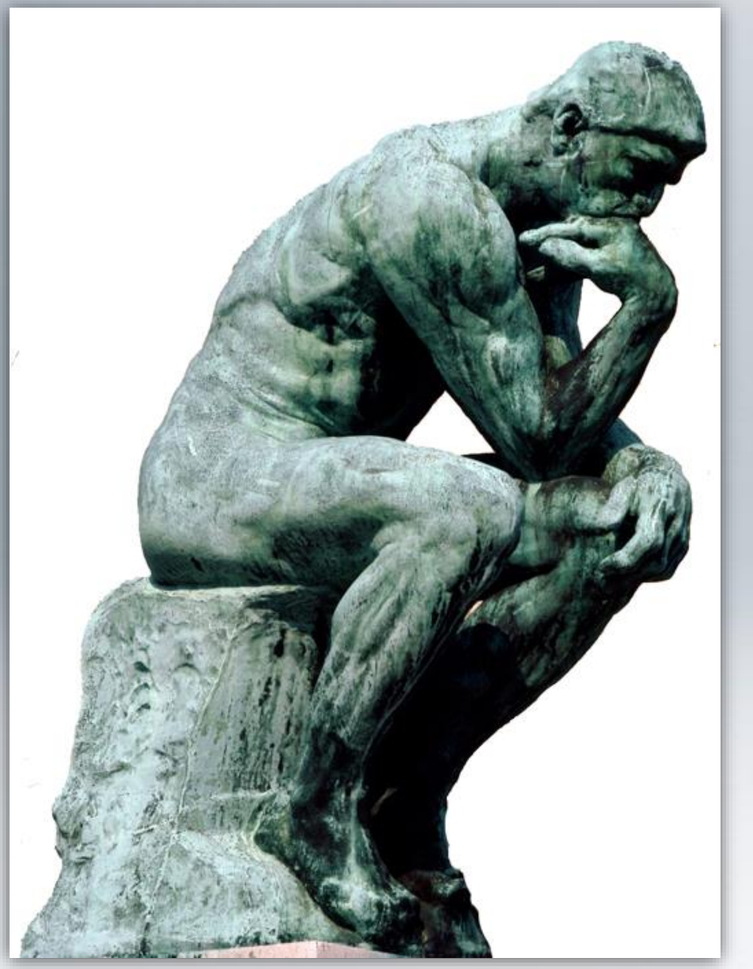


- *Can LDLT be considered for patients just beyond conventional criteria, provided donor and recipient fully understand risks?*
- *Do strict listing criteria exist to ration access due to DD scarcity?*
- *Can we expanded HCC criteria in LDLT since organ availability is not limited by allocation rules?*
- *Are broader criteria ethically more acceptable since there is no competition with deceased donor allocation?*
- *Outcomes in many centers (Japan, Korea, parts of Asia) show comparable survival even with expanded criteria, especially if tumor biology (e.g., AFP, PIVKA-II, PET avidity) is favourable.*

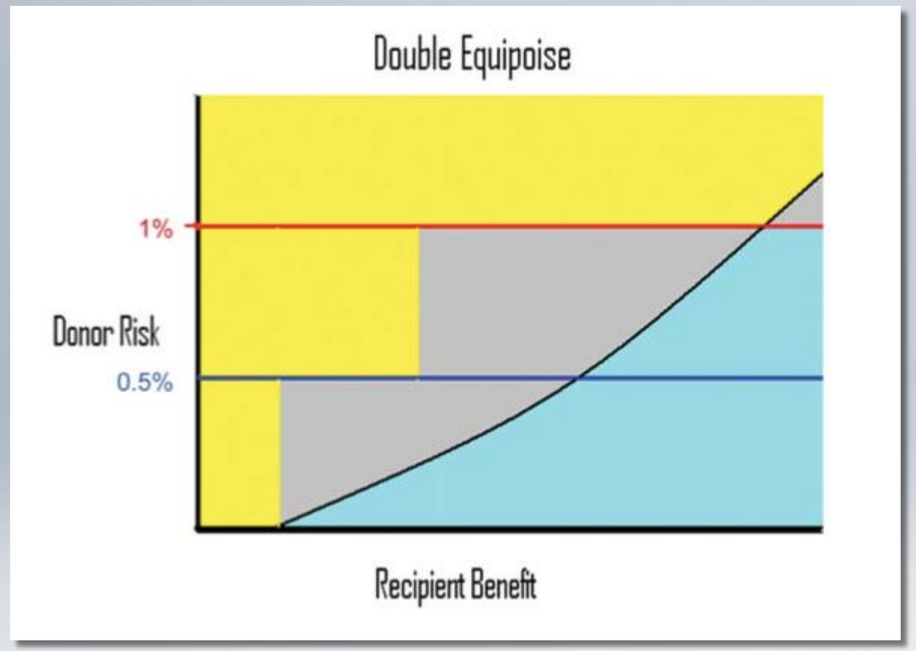
- ***Change to include patients beyond normal criteria***

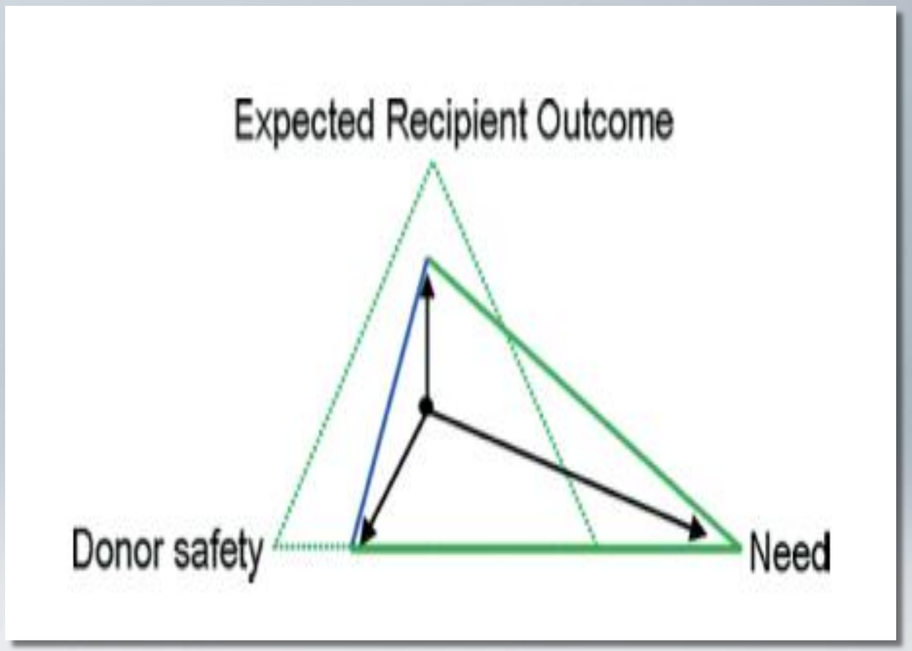
Expanded Criteria for LDLT in HCC

1. **UCSF Criteria**
   - Single tumor ≤6.5 cm, OR
   - ≤3 nodules with the largest ≤4.5 cm, and total tumor diameter ≤8 cm.
2. **Kyoto Criteria**
   - ≤10 tumors, all ≤5 cm, **and** PIVKA-II (Des-γ-carboxy prothrombin) ≤400 mAU/mL.
3. **Kyushu Criteria**
   - ≤5 tumors, all ≤5 cm, and PIVKA-II ≤300 mAU/mL.
4. **Asan Criteria (Korea)**
   - ≤5 tumors, each ≤6 cm.
5. **Tokyo Criteria**
   - ≤5 tumors, all ≤5 cm, **and** no gross vascular invasion.
6. **Up-to-7 Criteria** (sum of tumor size in cm + number of nodules ≤7).

Criteria	Tumor Size	Tumor Number	Biomarker	5-yr Overall Survival (approx.)
Milan (Standard)	Single ≤5 cm OR ≤3 tumors ≤3 cm	≤3	None	~70–80%
UCSF	Single ≤6.5 cm OR ≤3 tumors with largest ≤4.5 cm	≤3, total ≤8 cm	None	~75%
Up-to-7	Sum of (largest tumor size in cm + tumor number) ≤7	Any	None	~70%
Asan (Korea)	Each ≤6 cm	≤5	None	~75%
Kyoto (Japan)	Each ≤5 cm	≤10	PIVKA-II ≤400 mAU/mL	~80%
Kyushu	Each ≤5 cm	≤5	PIVKA-II ≤300 mAU/mL	~80%
Tokyo	Each ≤5 cm	≤5	None (but no gross vascular invasion)	~75%

- ***Change to include patients beyond normal criteria***





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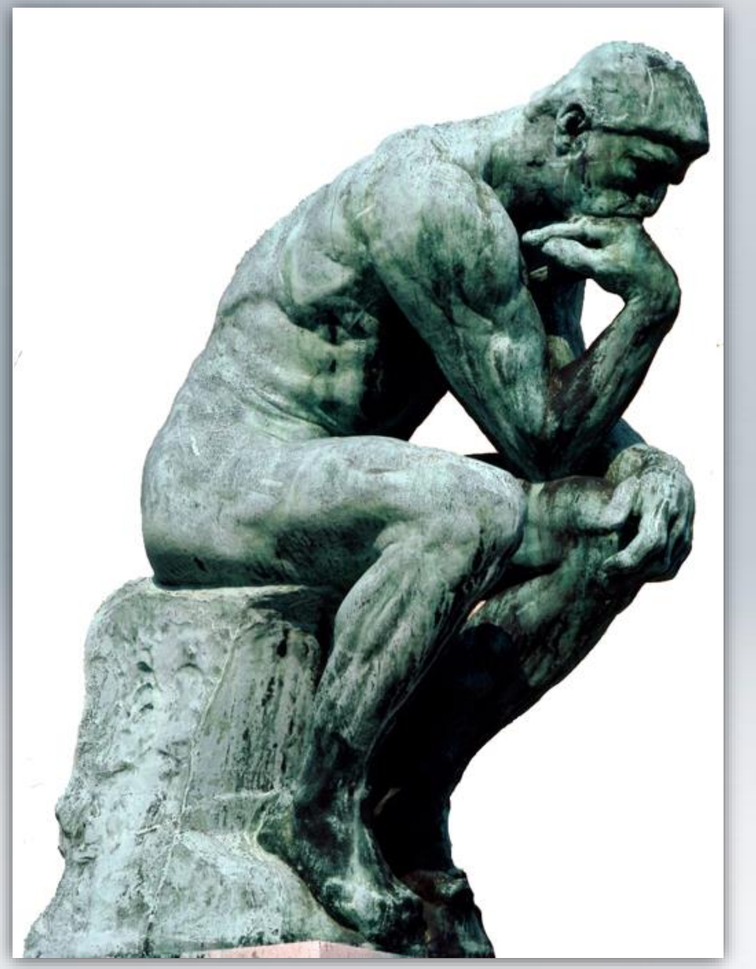

- *YES it is ethically acceptable to expand listing criteria for patients undergoing LDLT*
  - *Disadvantaged cohorts with demonstrable need and transplant benefit.*
  - *Use disease specific rather than generalised criteria to demonstrate need.*
  - *Can be considered in Phase 1 of roll out.*
- *YES it MAY ethically acceptable to expand listing criteria for patients undergoing LDLT with HCC*
  - *Due ethical consideration for survival benefit vs donor risk*
  - *Can be considered in Phase 2 of roll out.*
- ***DONOR RISK REMAINS PARAMOUNT!***