Validation of a model predicting graft survival after liver transplantation: The Donor risk index (DRI) a useful tool in Latin America.

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Background: Orthotopic liver transplantation (OLT) is the only life-saving option for end-stage liver disease patients (pt). The progressive organ shortage and an increase in the waiting list, has led to the use of marginal organs. The development of objective scores to assess the donor (D) is necessary. The Donor Risk Index (DRI) developed in 2006 (Feng et al. Am J Transp), considers seven D characteristics (age; height, graft type, race, cause of death, cold ischaemia time, organ location, donation after cardiac death), and has shown to predict pt/graft failure at 3, 12 and 36 months after OLT in some North American and European centers. Nevertheless, there is still debate on its clinical usefulness and there is scarcity of data in Latin-America.

Aim: To assess and validate DRI as a prognostic model of survival after OLT in Chile with current MELD-based liver allocation rules.

Methods: All adult OLT performed in Clínica Alemana between January/ 2001- May/2017 were included. Biodemographic and clinical data from D and recipients (R) were analyzed from a prospectively built database. The DRI was calculated as described by Feng et al. (Iphone app “Liver DRI”). Statistical analysis through survival curves, and comparisons between groups (t student; p<0.05).

Results: 155 OLT with all complete data, were analyzed. Overall pt survival at 3, 12 and 36 months was: 94%, 91% and 85% respectively.

R data: (Table). D Data: (Table) 68% D were Local and close to OLT center (< 50 km); 17% Regional (51-200 km) and 14% National (>200 km away). Local D had a shorter ischemia time (6,55+0,08 hrs) than Regional or National D (8,09+0,1 and 8,56+0,09 hrs, respectively, p< 0,0001). Mean DRI from Local D (1,28+0,24) was significantly lower than DRI from National D (1,63+0,27; P < 0,0001). A D with a DRI < 1,5 (given to R with a mean MELD score:20,6 points) correlated with a 3, 12 and 36 months survival of 94%, 93% and 88% respectively. A D with a DRI > 1,5 (given to R with a mean MELD score:18,5 points) correlated with a significantly lower pt survival of 90%, 86% and 77% respectively (p=0,02).
### Recipient data

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>51.3 ± 11.5 (23% &gt; 60y)</th>
<th>40.9 ± 13 (29% &gt; 50 y)</th>
<th>P&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>57% men</td>
<td>59% men</td>
<td>NS</td>
</tr>
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</table>
| Features         | • 72%: decompensated cirrhosis  
• 12%: fulminant hepatitis.  
• 48%: Child-Pugh C  
• MELD at OLT: 20+8.5 points  
• MELD > 22 : 30% | • Height: 167.5 ± 8.9 cm  
• 58%: cerebrovascular accident.  
• 38%: head trauma.  
• Mean DRI 1.4  
• Ischemia time: 7.24±0.09 hours |         |

### Donor Data

**Conclusions**: Based on this cohort experience from Chile, a lower DRI score is significantly correlated with a better survival prognosis in pt after OLT. This correlation is also true for higher MELD score R. The use of this score can be very helpful to allocate organs, considering also the D characteristics and especially the regional distances to bring an organ without sacrificing the future allograft function.