Is it Possible to Predict Severe Macrovesicular Steatosis with Liver to Spleen Ratio and Body Mass Index?

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Introduction

- Graft steatosis = risk of early allograft dysfunction (Deroose et al., 2011).
- May be used provided selection of recipient (Afonso et al., 2006).
- Severe steatosis = potential contraindication (Montati et al., 2008).
- Liver to spleen (L/S) ratio assessed with CT scan has been shown to predict moderate liver steatosis (Roger et al., 2015).

Aim of the Work

To validate on an external cohort the L/S ratio ≤ 0.9 as a predictor of moderate steatosis.
To identify independent predictors of severe macrovesicular steatosis.

Materials and Methods

Study Population

- All consecutive Donors January 2012 - February 2015 With available L/S ratio measurement.
- Paul Brousse Hospital, France.
- N= 212 patients

Pathological analysis

- Retrospective analysis of liver biopsy systematically performed before procurement.
- Data of donors prospectively collected in the Agence of Biomédecine database.
- L/S ratio is a recently added item...

Determined by radiologists of donor hospital

Results

Baseline of the study population

<table>
<thead>
<tr>
<th>Variables</th>
<th>% of change</th>
<th>% or range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>Male</td>
<td>57.7 (±18)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>54.7</td>
</tr>
<tr>
<td>Mean BMI</td>
<td>Male</td>
<td>25.7 (±5)</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>25.6</td>
</tr>
<tr>
<td>Macrosteatosis</td>
<td>No macrosteatosis</td>
<td>53.3</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>39.6</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Microsteatosis</td>
<td>No steatosis</td>
<td>49.1</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>40.6</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>8.5</td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>1.9</td>
</tr>
<tr>
<td>Mean L/S ratio</td>
<td>1.2 (±0.4)</td>
<td>0.18 - 3.0</td>
</tr>
<tr>
<td>L/S ratio &lt; 0.9</td>
<td>21.2</td>
<td></td>
</tr>
</tbody>
</table>

ROC curve for moderate macro steatosis

L/S ratio to discriminate moderate vs severe?

The addition of BMI?

Similar cutoff 0.9 with good AUC

Multivariate model

- Moderate macrosteatosis (Category)+ rcs (Liver to spleen ratio,3)
- C-Index (= AUC) : 0.84
- The addition of the BMI improves the model...

Prediction model associating L/S ratio and BMI

Continuous effect of ratio...

Conclusion

- External validation of the L/S ratio in routine!
- The use of BMI improves the predictive value of the model
- L/S ratio cannot discriminate moderate to severe steatosis!
- Little relationship with microsteatosis...

References