Incorporation of Donor Liver Macrovesicular Steatosis into SRTR Risk Adjustment Models for Deceased Donor Yield and Post-Transplant Outcome

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Disclosures

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I have no financial relationships to disclose within the past 12 months relevant to my presentation. The ACCME defines 'relevant' financial relationships as financial relationships in any amount occurring within the past 12 months that create a conflict of interest.

My presentation does not include discussion of off-label or investigational use.

I do not intend to reference unlabeled/unapproved uses of drugs or products in my presentation.

SR TR SCIENTIFIC REGISTRY OF TRANSPLANT RECIPIENTS

Background

- Macrovesicular steatosis is a known predictor of graft failure
  - Risk of PNF and early allograft dysfunction
  - Considered extended criteria, or "marginal" livers

- SRTR had not traditionally included liver biopsy results in risk adjustment models
  - Not always available
  - Not interpreted or reported consistently

- But biopsy results may influence outcomes and decisions regarding organ acceptance

Background

Aims

1. To evaluate the impact of donor macrovesicular steatosis on organ yield and graft outcome after liver transplantation

2. To evaluate the effect of incorporating this variable into SRTR risk adjustment models for organ yield and program-specific graft outcomes

Methods

- Scientific Registry of Transplant Recipients
    - All donors, waitlisted candidates, and transplant recipients in the United States 2017-2019
    - Levels of macrovesicular steatosis categorized into:
      0-10%, 11-30%, 31-50%, ≥50%, and not available
    - Other covariates aligned with current SRTR risk-adjustment models
- Impact of macrovesicular steatosis on:
    - Deceased donor yield (# of transplanted livers recovered)
        - Interaction between DCD and macrovesicular steatosis
    - 1-year posttransplant graft survival
- Multivariable logistic regression and Cox models with LASSO
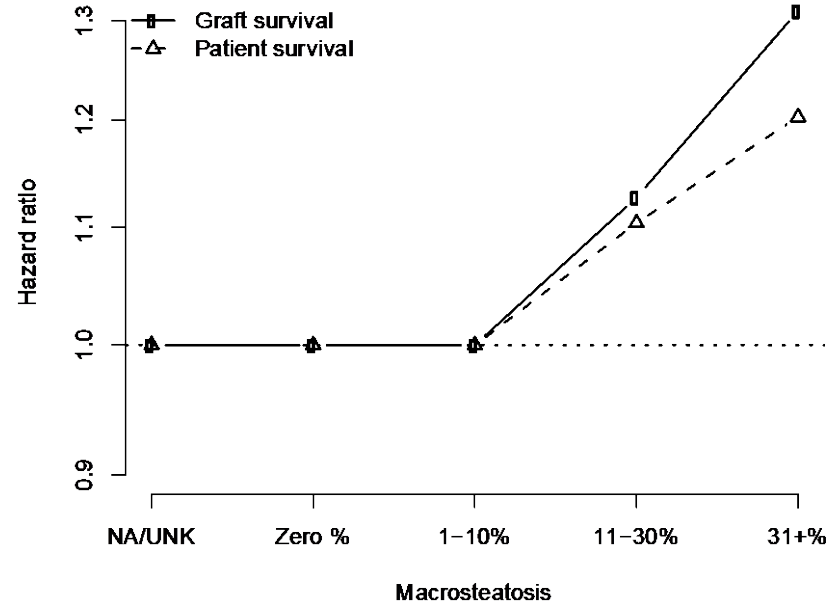
Results

Donor characteristics	
Median age (SD)	41 (17)
Sex (%)	
Male	1305 (60.5)
Female	8507 (39.5)
Cause of death (%)	
Anoxia	9319 (43.2)
Trauma	5865 (27.2)
CVA/Stroke	5717 (26.5)
Other	658 (3.1)
Donation after circulatory death (SD) (%)	4329 (20.1)
Macrovascular steatosis	
Not available	14185 (65.8)
0-10%	5096 (23.6)
11-30%	1269 (5.9)
31-50%	721 (3.3)
≥50%	288 (1.3)

Increasing levels of steatosis on donor liver biopsy predicted lower organ yield
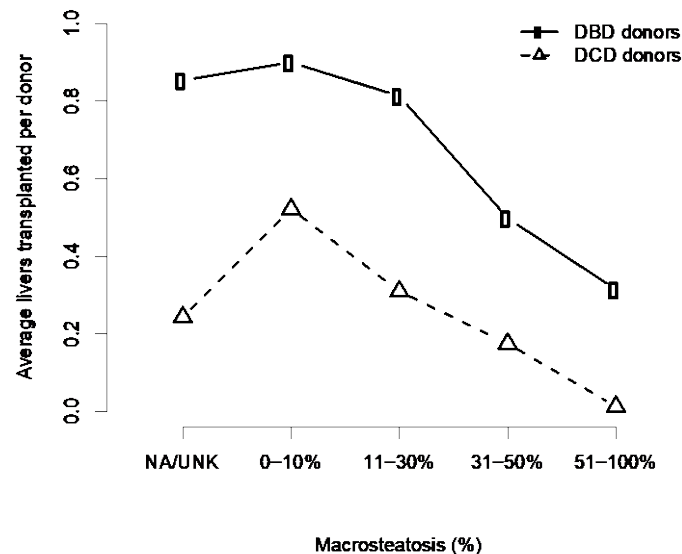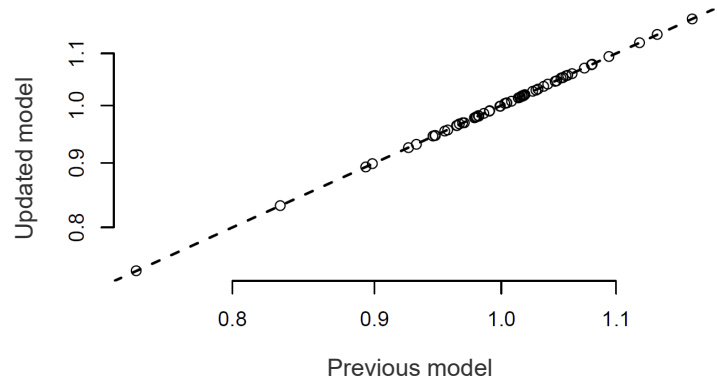
Results

Higher risk of posttransplant graft failure and mortality using donor livers with 11-30% or >30% macrovesicular steatosis
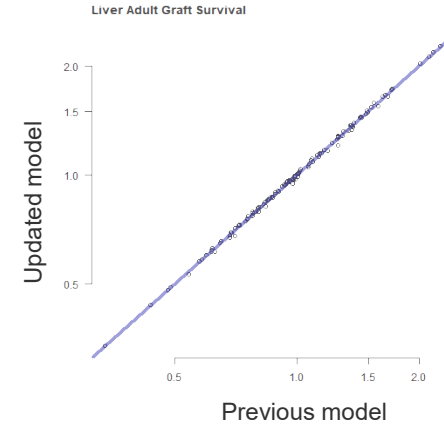
Results

Previous model versus updated model (+ macrovesicular steatosis)

Impact on OPO-specific deceased donor yield estimates

Impact on program-specific graft outcome, current model

Conclusions

- Macrovesicular steatosis is associated with lower organ yield and reduced graft survival

- Incorporating biopsy results into current risk adjustment models may reduce disincentives to use these organs

- This risk factor has been added to the SRTR risk adjustment models for OPO and program-specific assessments and may facilitate more judicious use of organs with macrovesicular steatosis

CDRG

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