

# UCLA

## UCLA Previously Published Works

### Title

x Fractional Flow Reserve in Patients With End-Stage Liver Disease

### Permalink

<https://escholarship.org/uc/item/0ps6521g>

### Journal

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY, 76(17)

### ISSN

0735-1097

### Authors

Kumar, Preetham

Honda, Henry

Suh, William

et al.

### Publication Date

2020

### Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

**TCT CONNECT-205****Fractional Flow Reserve in Patients With End-Stage Liver Disease**

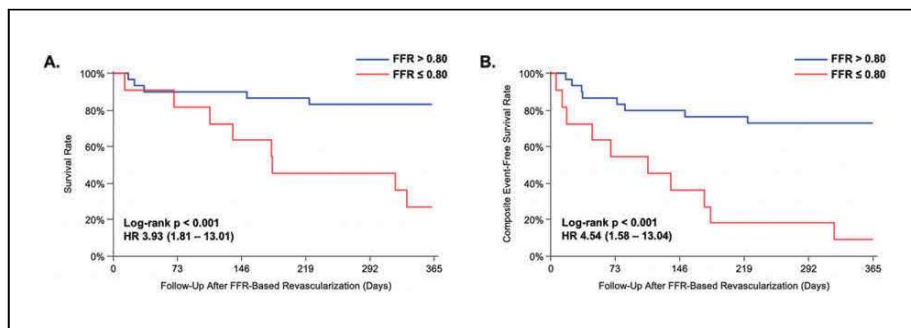
Preetham Kumar,<sup>1</sup> Henry Honda,<sup>2</sup> William Suh,<sup>3</sup> Michael Lee,<sup>1</sup> Marcella Press,<sup>4</sup> Ali nsair,<sup>1</sup> Olcay Aksoy,<sup>2</sup> Jonathan Tobis,<sup>1</sup> Rushi Parikh<sup>2</sup>

<sup>1</sup>UCLA Medical Center, Los Angeles, California; <sup>2</sup>UCLA, Los Angeles, California; <sup>3</sup>Riverside Medical Clinic, Riverside, California; <sup>4</sup>Ronald Reagan Medical Center, Los Angeles, California

**BACKGROUND** Fractional flow reserve (FFR) determines the functional significance of epicardial stenosis assuming negligible venous pressure (Pv) and microvascular resistance. However, these assumptions may be inappropriate in end-stage liver disease (ESLD) due to physiology characterized by dynamic Pv and vasodilation.

**METHODS** All ESLD patients at UCLA who underwent FFR and right heart catheterization between 2013 and 2018 were included. Resting Pd/Pa, FFR (Pd/Pa at maximal hyperemia using intravenous adenosine), and Pv (mean right atrial pressure) were measured. We defined FFR accounting for Pv (FFR-Pv) as  $[Pd - Pv] / [Pa - Pv]$  and the hyperemic effect of adenosine as resting Pd/Pa - FFR. The primary endpoint was all-cause death at 1 year. The secondary endpoint was the composite of myocardial infarction, repeat revascularization, or all-cause death at 1 year.

**RESULTS** Among 42 ESLD patients, 49 stenoses were assessed by FFR, 90% of which were angiographically mild/intermediate (<70% diameter stenosis). Twelve patients had functionally significant stenoses (FFR  $\leq 0.80$ ); 11 underwent revascularization and 1 died before revascularization. Overall, the median Model for End-Stage Liver Disease (MELD) score was 16.5 (10.8 to 25.5), FFR was 0.87 (0.81 to 0.94), resting Pd/Pa - FFR was 0.06 (0.02 to 0.08), Pv was 8 mm Hg (4 to 14), and FFR-Pv was 0.86 (0.80 to 0.94;  $p = 0.28$  for comparison to FFR). FFR-Pv led to reclassification of 1 lesion to functionally significant. There was no correlation between MELD score and the hyperemic effect of adenosine ( $R = 0.10$ ). At 1 year, 13 patients had died. Patients with FFR  $\leq 0.80$  had significantly higher all-cause death (Figure A) and composite events at 1 year (Figure B).



**CONCLUSION** FFR appears viable in the ESLD population and may have prognostic value even in angiographically intermediate coronary disease. Larger, prospective studies are needed to validate these data.

**CATEGORIES IMAGING:** Physiologic Lesion Assessment