Prelisting Prescription Narcotic Use: Survival Implications in Liver Transplantation

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SCIENTIFIC REGISTRY OF TRANSPLANT RECIPIENTS

Disclosures

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Background

- **Chronic pain** is a common complaint among patients with **end-stage liver disease (ESLD).**
  - Such pain is frequently treated with prescription narcotics.
- Recent studies raise concerns about **adverse outcomes** associated with use of prescription narcotics in diverse populations.
- Study Question: Does **prescription narcotics** use among ESLD patients seeking **liver transplants (LTx)** have prognostic importance for posttransplant outcomes?

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Database Integration

Research Strategy

- Linkage of the **national transplant registry** with other data sources – combine value of:

Confirmed patient status (e.g., recipient)

+

Baseline patient and **transplant characteristics**

+

Additional **exposure** information

- **Pharmacy fill records**
  - Non-obtrusive measure of **prescribed health care.**
  - Surrogate **measure of comorbidity** in epidemiologic investigations, including in transplant populations.

Database Integration

- Use of **prescription narcotics** in the year before **kidney**

Objective of current study:

- **Investigate whether prescription narcotic fills before LTx listing predict post-LTx outcomes.**

Lentine et al, *Am J Nephrol* 2015

Methods: Design & Study Measures

- **Data Sources**
  - Scientific Registry of Transplant Recipients **(SRTR)**
  - Symphony Health Solutions **(SHS)** pharmacy claims warehouse
- **Sample Identification**
  - **Patient-Level Linkage, SHS** to **SRTR** – encrypted tokens (transformed name, DOB, sex, ZIP code)

Methods: Study Measures

Covariates	Source
Demographics	• **SRTR:** Age, sex, race
Clinical factors	• **SRTR:** Blood type, cause of ESLD, MELD
Donor factors	• **SRTR:** Age, sex, race, type (DCD, non-DCD, living), cause of death (if deceased), partial vs. split
Transplant factors	• **SRTR:** Cold ischemia time

Methods: Study Measures

Outcomes	Source
Prelisting Narcotic Use	• **SHS:** Pharmacy fills for **narcotic medications** in the year prior to donation • Aggregated and normalized **to morphine equivalents (ME)**

- **48.6% filled ≥1 narcotic prescription in the year before listing**
- **25.8% filled multiple narcotic prescriptions that equated to total use ≥10 ME/day**

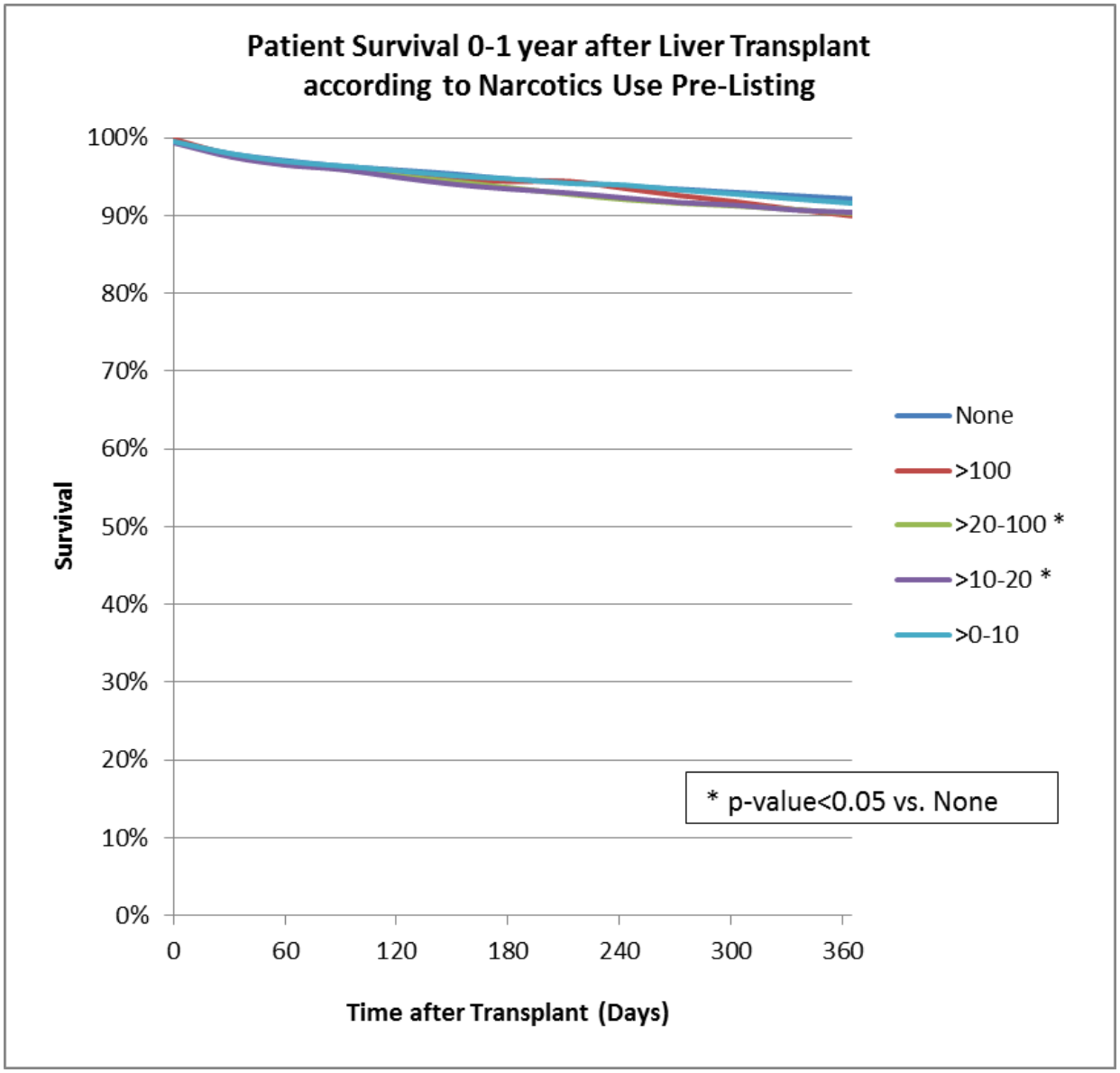
Baseline Characteristics

*p<0.05–0.002; †p=0.001–0.0002; ‡p<0.0001	No Narcotics	Level 1	Level 2	Level 3	Level 4
	(%)	(%)	(%)	(%)	(%)
Age (years)			*	‡	‡
18 to 35	5.1	5.1	4.9	5.1	5.1
36 to 40	2.9	2.9	3.4	3.5	2.7
41 to 55	32.4	33.7	**36.3**	**39.8**	**43.9**
56 to 70	57.4	56.1	53.8	50.5	48.0
>70	2.3	2.4	1.7	1.2	0.3
Male	65.3	**68.0**†	**67.0**	**67.3**	**71.8**†
Race		*	‡	‡	‡
White	84.7	85.9	84.0	**86.0**	**87.5**
Black	9.7	9.8	12.2	11.5	11.6
Other race	5.6	4.3	3.8	2.5	1.0
Unemployed	15.7	17.0	17.0	**11.8**	**8.1**

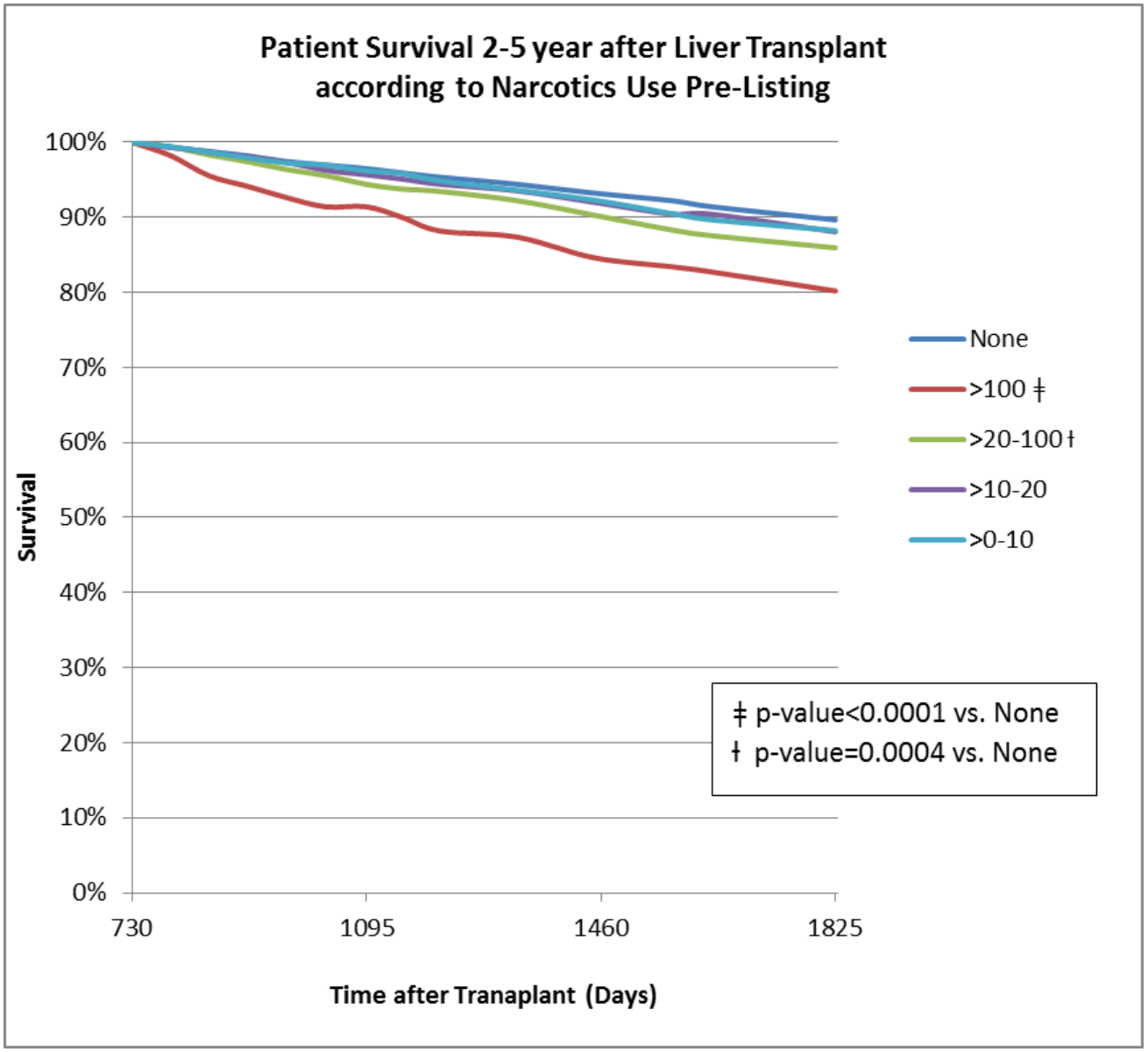
Baseline Characteristics

*p<0.05–0.002; †p=0.001–0.0002; ‡p<0.0001	No Narcotics	Level 1	Level 2	Level 3	Level 4
	(%)	(%)	(%)	(%)	(%)
Cause of ESLD		‡	‡	‡	‡
HCC	28.6	**38.9**	**38.6**	**35.9**	**40.7**
Hepatitis C	21.1	19.4	23.3	27.8	31.2
Hepatitis B	1.6	1.1	1.2	0.7	0.8
Metabolic	3.6	2.5	2.4	2.3	1.2
Alcoholic	14.0	11.9	10.2	11.7	5.2
Other/ unknown	31.2	26.3	24.4	21.8	20.9

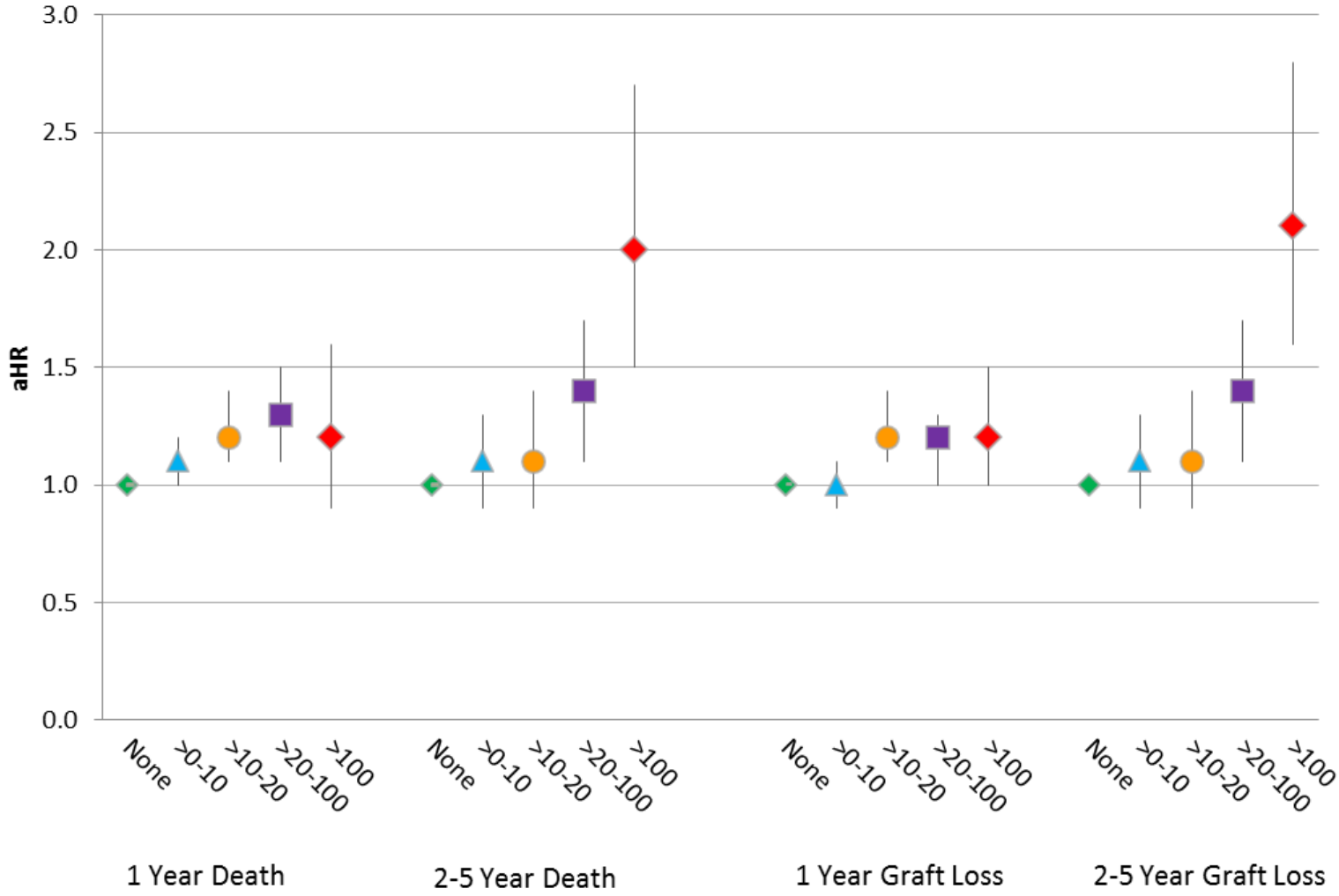
0-1 Yr. Post-LTx Survival By Prelisting Narcotics Use



2-5 Yr. Post-LTx Survival By Prelisting Narcotics Use



Adjusted Associations of Prelisting Narcotic Use with Survival after LTx



Limitations

Design & Data

- Results **may not generalize** to recipients not identified in pharmacy data.
- **Retrospective, observational** design identifies associations but cannot prove causation.
- **Unable** to account for **illicit drug use, "pharmacy shopping"** behaviors, or narcotic prescription fills for pharmacies not included in SHS database.

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Strengths

Design & Data

- **Confirmed candidate status** and **ascertainment** of **posttransplant outcomes** through linkage with the national donor registry.
- **Pharmacy fill records** as a novel **exposure among LTx candidates.**

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Conclusions

- **Prelisting narcotic use** is a **novel risk factor** for death after liver transplant.
  - While associations may in part reflect narcotic use as a measure of comorbidity, the observation is relevant to **risk stratification** and **counseling.**
- Future work should investigate **underlying mechanisms** and approaches to **optimizing posttransplant outcomes.**

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