



Opioid Prescription Pattern And Risk Factors Associated With Opioid Use After Living Donor Hepatectomy in The US

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Introduction

Background

Opioids are the cornerstone of acute pain management after living donor hepatectomy. Their misuse poses the danger of chronic abuse [1]. How this affects living liver donors is unknown in the opioid epidemic era.

Objective

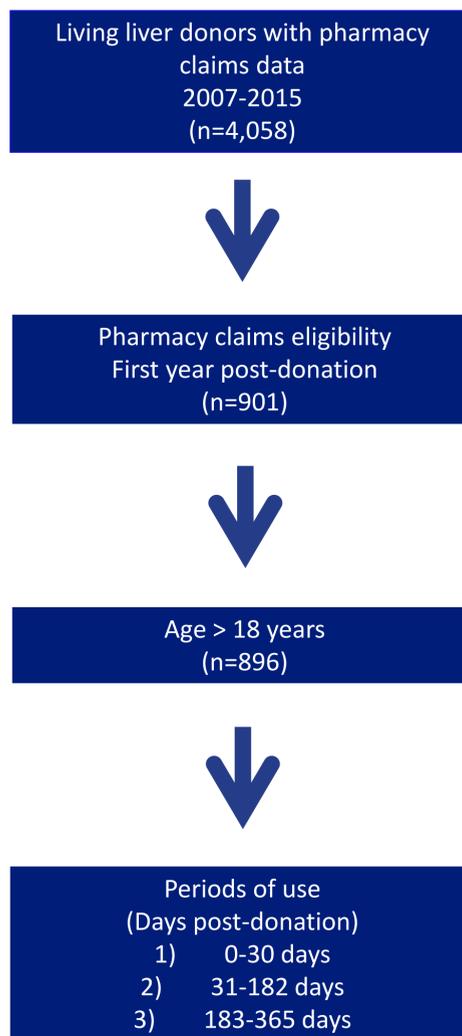
Investigate opioid prescription patterns and risk factors associated with opioid use after living donor hepatectomy in the US.

Methods

- SRTR/OPTN data were linked to billing claims from a large US pharmaceutical claims data clearinghouse.
- 896 adult living liver donors from 2007-2015 were retrospectively reviewed.
- Associations of opioid use with baseline living liver donor clinical variables were examined with multivariate logistic regression during the first year post-donation between 1) 0-30, 2) 31-182, and 3) 183-365 days.
- Multivariate logistic regression examining associations between opioid use and the following living liver donor variables:

- Age
- Sex
- Race
- BMI
- Education
- Employment
- Insurance
- Donor-recipient relationship
- Smoking
- Year of donation
- Hepatectomy extent
- Complications

Figure 1. Sample construction



Results

Opioid use (Figure 2)

- Opioid prescription filling among living liver donors was 40%, 16%, and 13% between 0–30, 31–182, and 183–365 days post-donation.
- The preferred opioid was oxycodone between 0–30 days and shifted to hydrocodone between 183–365 days.

Multivariate logistic regression examining associations between opioid use and living liver donor variables (Table 1)

- Right lobe, left lobe, or left lateral segment donation did not influence opioid use.
- Re-operation did not influence opioid use.
- Opioid use was increased between 31–182 days in donors who were re-admitted or underwent non-operative interventions.
- Demographic variables associated with increased opioid use beyond 0–30 days included white race, smoking, lower education level, and uninsured status.

Discussion

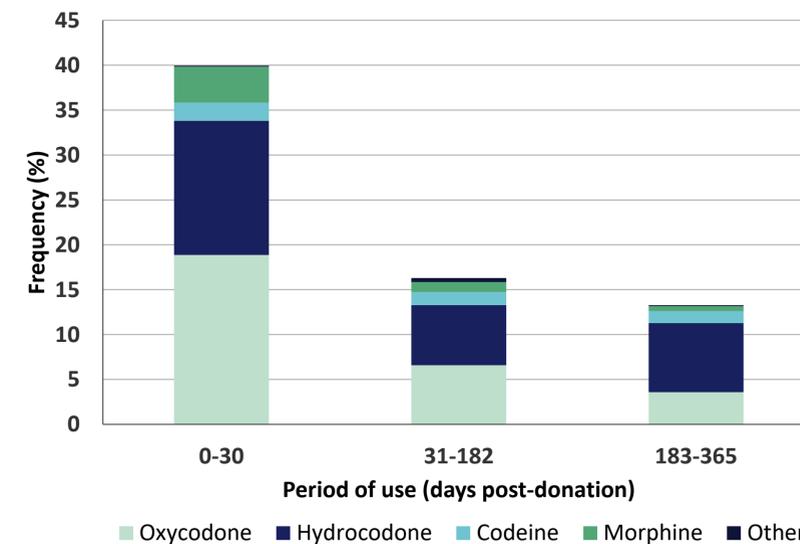
Compared with other surgeries

- Higher number of living liver donors require opioid prescription beyond the acute pain phase than non-oncologic (6-8%) and oncologic surgery (10.4%) patients. [2]

Limitations

- Small sample size
- Opioid prescription does not equal use.
- In-hospital perioperative pain regimen unknown (epidural, TAP block, wound catheter).
- Unknown whether donor hepatectomy open or laparoscopic.
- Findings may not be applicable outside the US.

Figure 2. Opioid use in the first year after living donor hepatectomy



Conclusion

This is a first large dataset study showing that 13-16% of living liver donors require opioids beyond the acute pain phase post-hepatectomy, with a preference shift from oxycodone to hydrocodone. Identified demographic and clinical risk factors could prove useful in developing targeted strategies to minimize opioid use in future living liver donors.

References: [1] Brady et al. Am J Psychiatry 2016; 173:18-26, [2] Lee et al. J Clin Oncol 2017; 35: 4042-4049.

Table 1. Multivariate logistic regression examining associations between opioid use and living liver donor variables

Donor variables	Periods of opioid use after living donor hepatectomy		
	0 – 30 days aOR (95% CI)	31 – 182 days aOR (95% CI)	183 – 365 days aOR (95% CI)
Education level			
College	Reference	Reference	Reference
K-12	1.08 (0.75-1.54)	1.61 (1.00-2.57)*	1.36 (0.81-2.25)
Unknown	1.83 (1.07-3.15)*	1.92 (0.89-3.93)	1.45 (0.63-3.15)
Insurance status			
Insured	Reference	Reference	Reference
Uninsured	1.35 (0.78-2.30)	2.46 (1.26-4.61)*	2.09 (1.01-4.08)*
Unknown	1.98 (1.14-3.46)*	1.14 (0.49-2.41)	1.33 (0.56-2.90)
Smoker			
	1.79 (1.30-2.46)†	1.94 (1.27-2.96)†	1.75 (1.10-2.74)*
Donor hepatectomy extent			
Right	Reference	Reference	Reference
Left	0.78 (0.52-1.16)	0.69 (0.37-1.22)	1.17 (0.64-2.06)
Left lateral	0.88 (0.59-1.31)	0.71 (0.37-1.29)	1.13 (0.60-2.06)
Complications			
None	Reference	Reference	Reference
Re-admission / Re-intervention	1.02 (0.66-1.55)	1.94 (1.13-3.25)*	0.96 (0.49-1.76)
Re-operation	0.79 (0.27-2.08)	0.93 (0.14-3.58)	0.54 (0.03-2.84)

*: p<0.05, †: p<0.01, aOR: adjusted odds ratio, CI: confidence interval.

