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Antidepressant Medication Use Before and After Kidney Transplant: Implications for Outcomes

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Background

- Kidney transplant (KTx) candidates undergo thorough evaluation to assess suitability for transplant.
- Prevalence of depression is higher among patients with chronic kidney disease.
- Depression is known to affect outcomes in complex surgical and medical patients, e.g., post-cardiac surgery, myocardial infarction.

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Aim

- Assess impact of antidepressant medication use on outcomes before and after KTx.

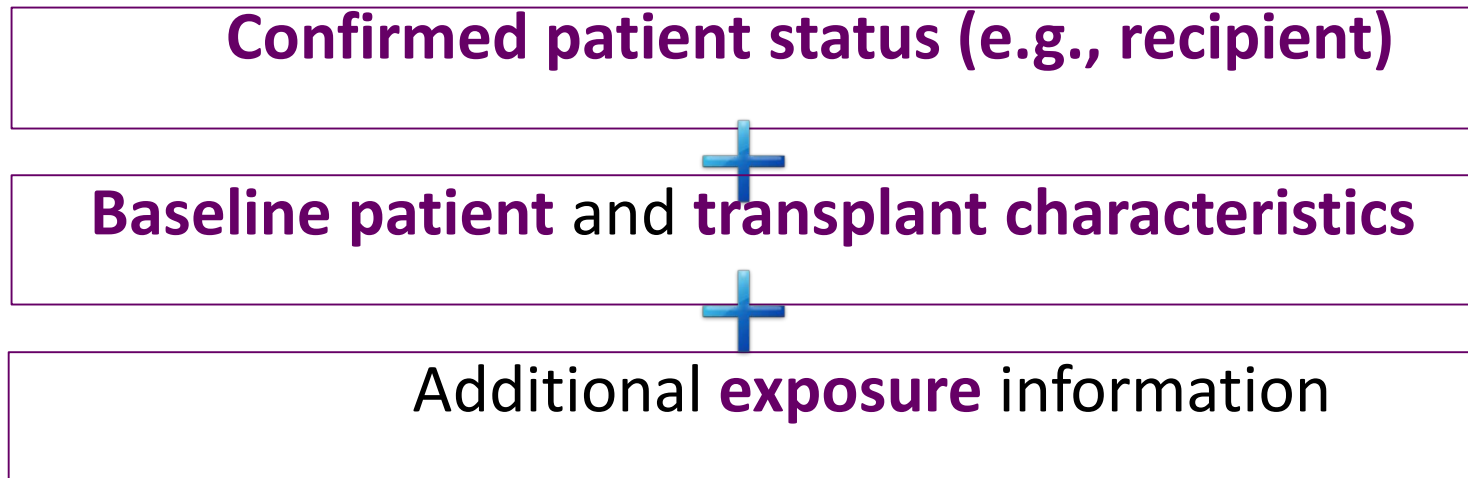
Study Design

- Data from the Scientific Registry of Transplant Recipients (SRTR) were linked to pharmacy fill data with billing claims for Symphony Health Solutions (SHS).
- Antidepressant medications included: selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, newer generation antidepressants, and combination therapies.
- Inclusion criteria: kidney transplant recipients 2008 through January 2015 with pharmaceutical fill records 1 year before transplant.

Database Integration

Research Strategy

- Linking the **national transplant registry** with other data sources combines value of:



Pharmacy fill records

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

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	<ul style="list-style-type: none">• SRTR: Age, sex, race
Clinical factors	<ul style="list-style-type: none">• SRTR: BMI, cause of ESRD, ESRD duration, recipient comorbid conditions, level of education, employment status, physical capacity, insurance, previous transplant, PRA
Donor factors	<ul style="list-style-type: none">• SRTR: Donor type
Transplant factors	<ul style="list-style-type: none">• SRTR: HLA mismatch, year of transplant

Methods: Study Measures

Outcomes	Source
Antidepressant Use	<ul style="list-style-type: none">• SHS: Pharmacy fills for antidepressants in the years before and after transplant• <u>Categories:</u><ul style="list-style-type: none">• Selective serotonin reuptake inhibitors (SSRI)• Newer generation antidepressants• Tricyclic/tetracyclics• Antidepressants in combination

Results: Sample & Exposure

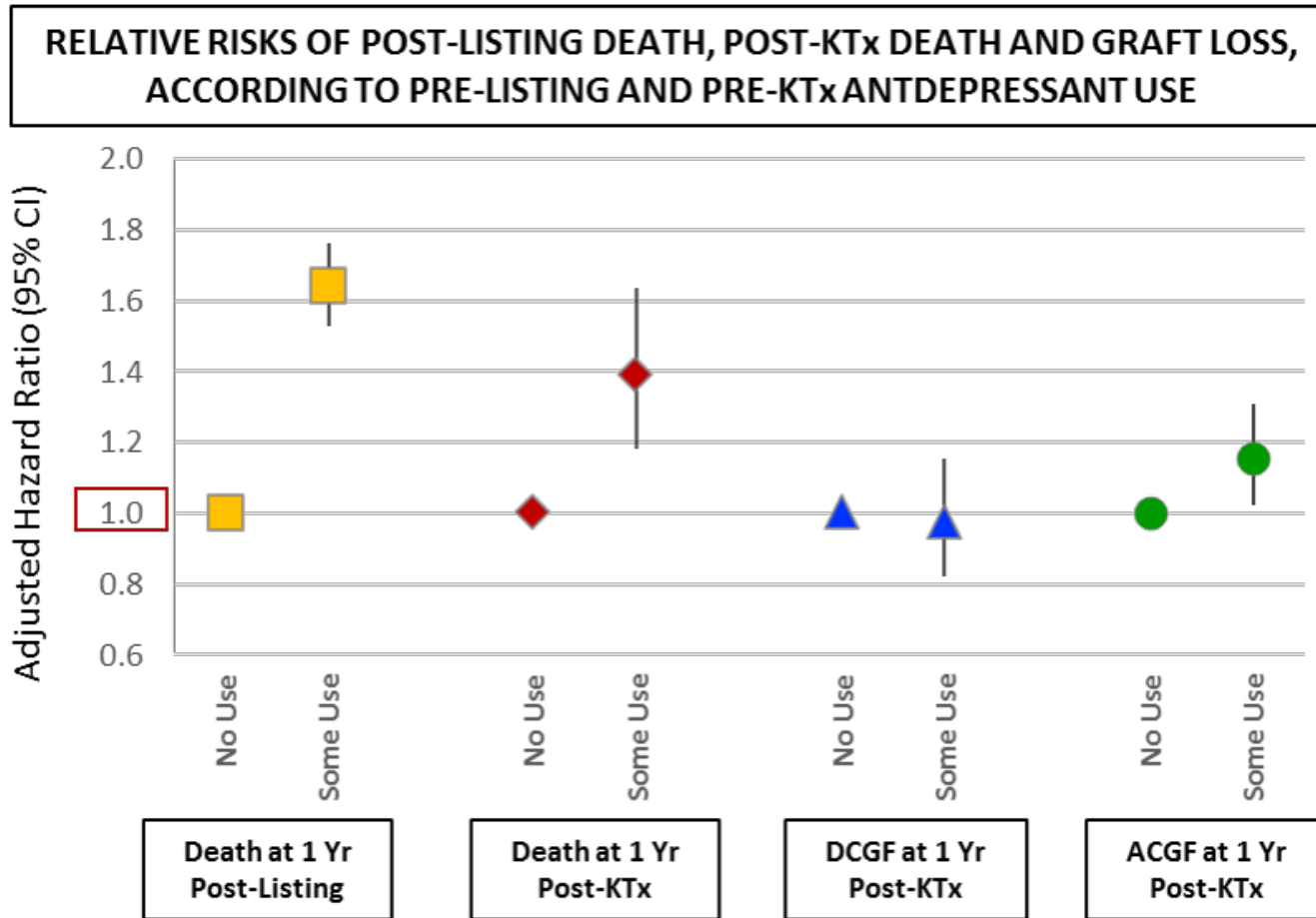
- 80,849 adult recipients of kidney-only transplants were identified in the SRTR database.
- 72,054 had linked pharmacy claims for the 1 year before transplant.
- 9,078 (12.6%) filled an antidepressant in the year pretransplant; of these:
 - SSRIs (61.7%)
 - newer-generation antidepressants (25.3%)
 - tricyclic antidepressant therapy (12.9%)
 - combination therapies (0.1%)

Correlates of Antidepressant Use Before KTx

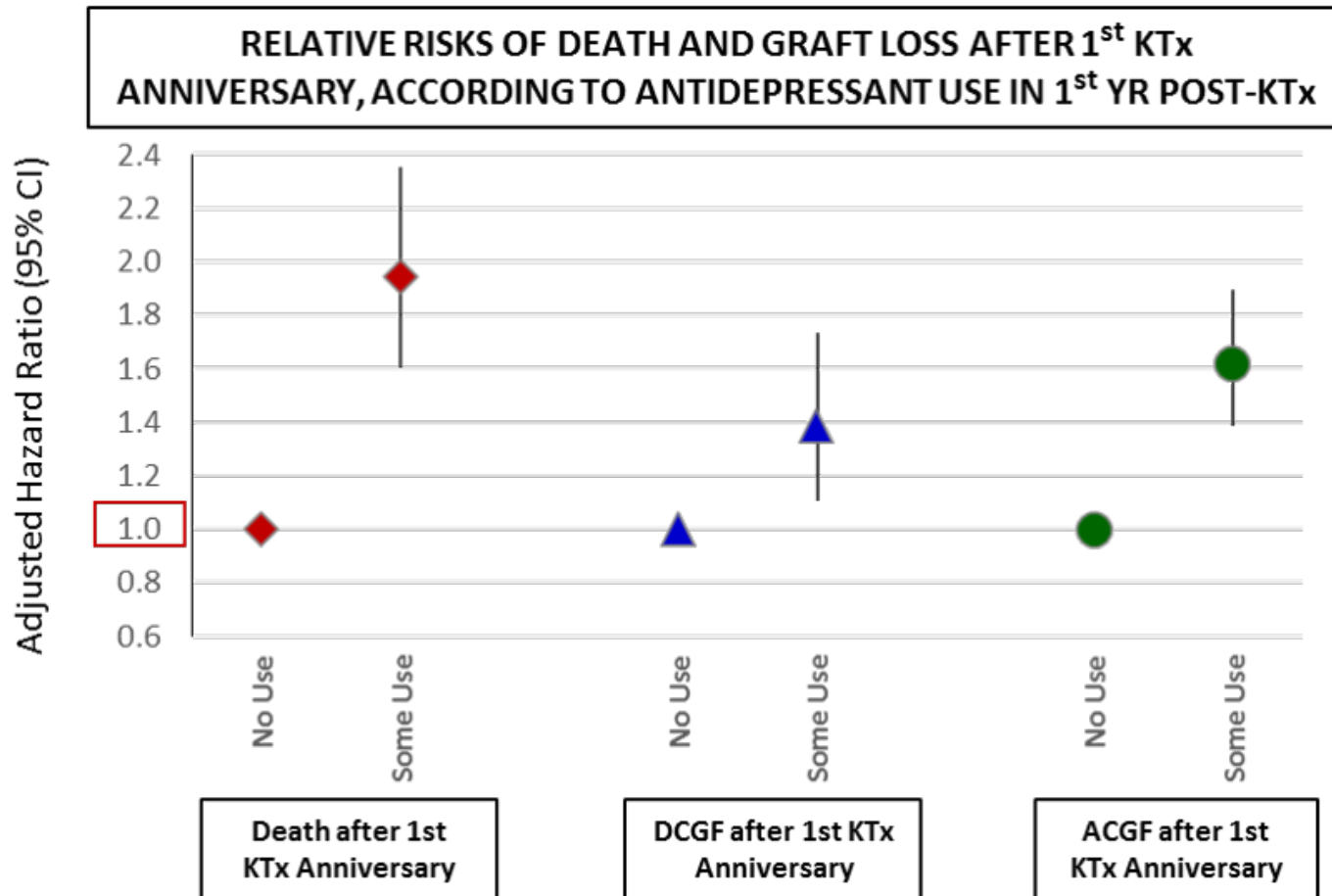
Pretransplant antidepressant use was more common among:

- Women (aOR $_{1.14}1.22_{1.29}$)
- White recipients (aOR $_{1.51}1.64_{1.77}$)
- Unemployed recipients (aOR $_{1.29}1.40_{1.51}$)
- Recipients with limited functional status (aOR $_{1.12}1.25_{1.39}$)

Pre-KTx Antidepressant use & Outcomes



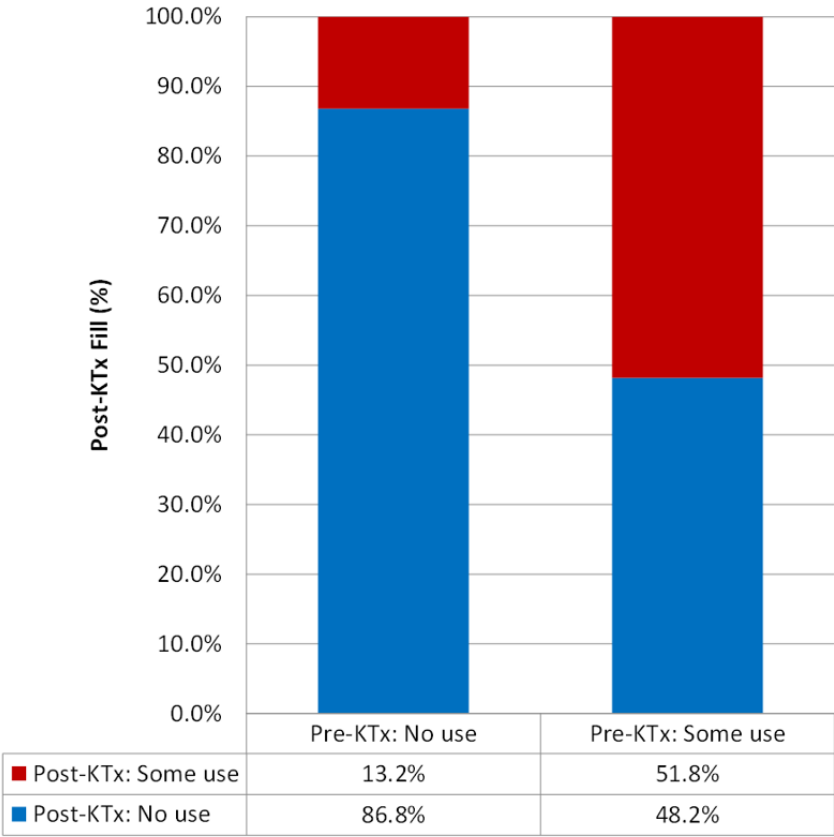
Pre-KTx Antidepressant Use & Mortality



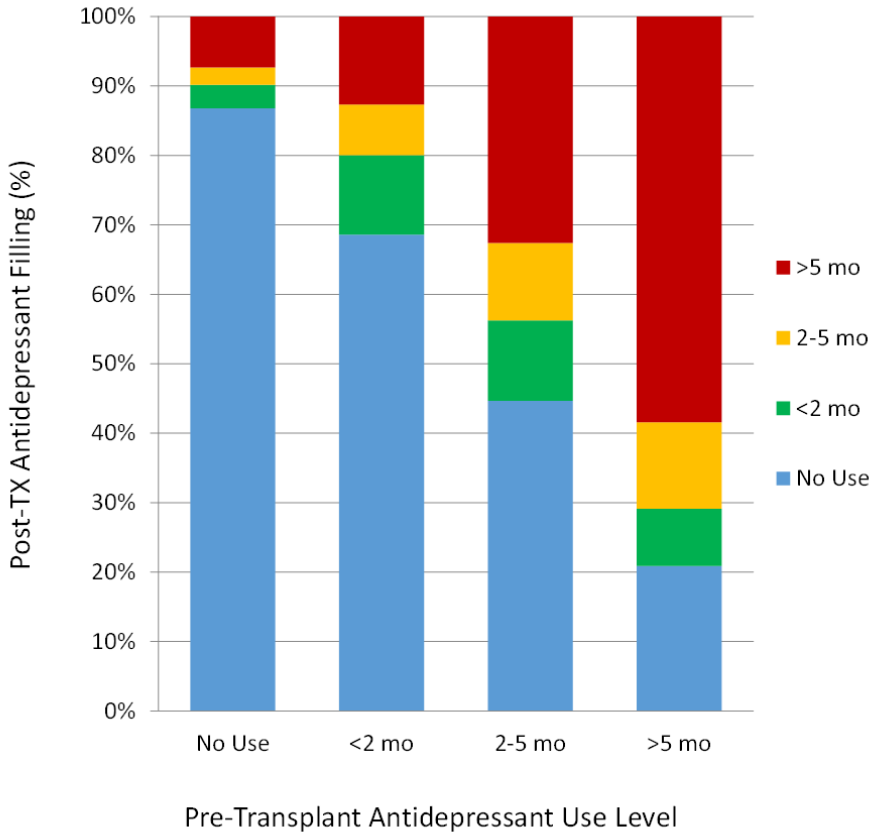
KTx as time-varying predictor of death after listing

- KTx was associated with similar ~60% reductions in the risk death after listing among patients who filled antidepressants before listing (aHR $_{0.38}0.42_{0.46}$) and among those without prelisting antidepressant medication fills (aHR $_{0.41}0.43_{0.45}$).

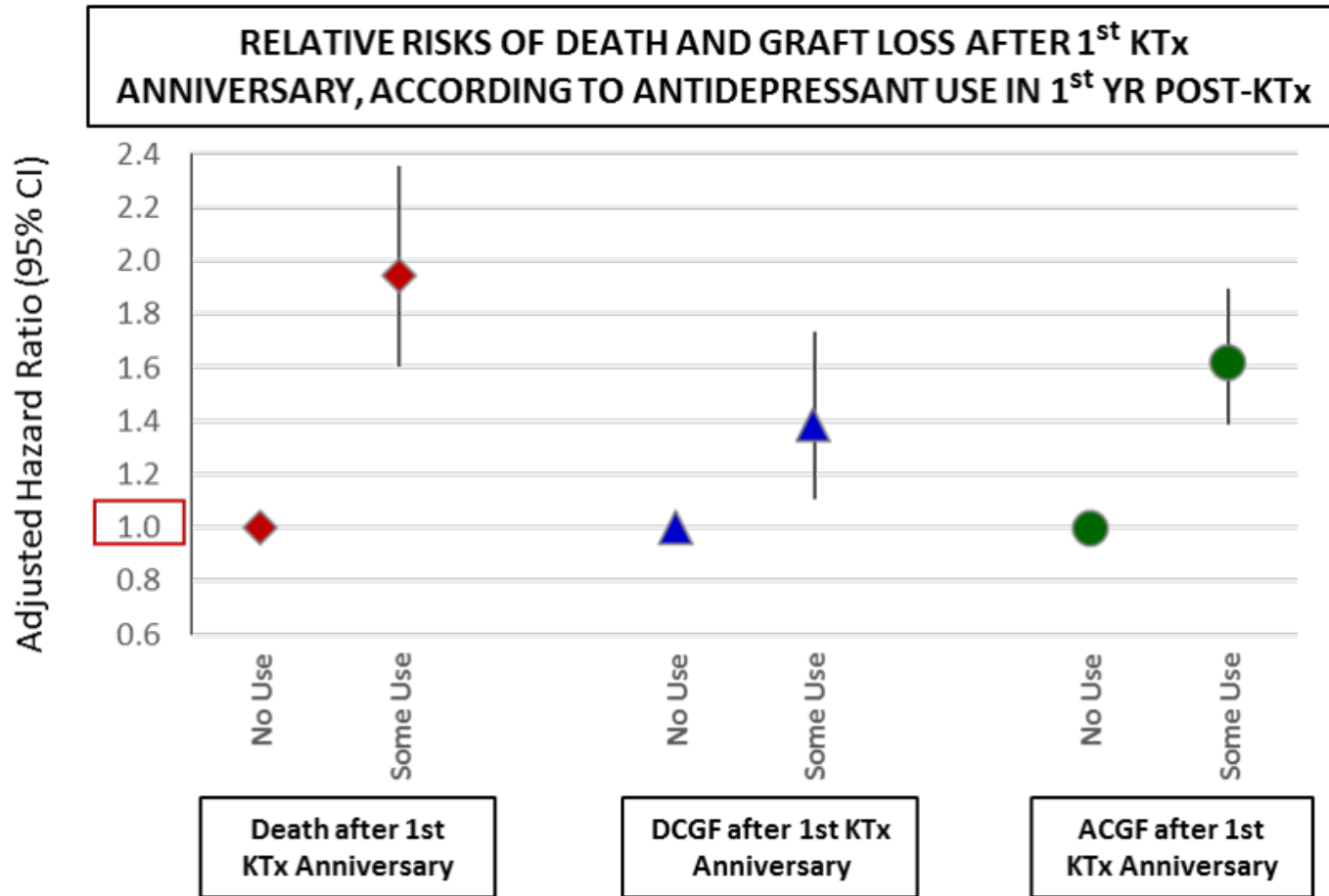
Post-KTx antidepressant use according to Pre-KTx antidepressant use



Post-KTx antidepressant use according to Pre-KTx antidepressant use



Post-KTx Antidepressant Use & Outcomes



Limitations

- Unable to obtain diagnosis leading to anti-depressant medication use.
- Unable to examine reasons for increased graft loss and mortality.

Conclusions

- Pre-listing antidepressant use was associated with increased mortality, but KTx confers survival benefit regardless of pre-listing antidepressant use.
- More than 50% of patients who filled antidepressants pretransplant continue to use posttransplant.
- Antidepressant use in the first year after transplant was associated with 2-fold higher risk of death and 61% higher all-cause graft failure.
- **Transplant candidates and recipients who require antidepressant therapy warrant careful evaluation, management, and focused monitoring post-KTx**