“eGFR trends at initiation of RRT: What is the true ESRD incident rate?”

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Background

• Recent trends for incidence of ESRD treated with RRT in USA are encouraging.
• But…
  ▪ Are incidence rates being underestimated?
    • What if cases with true ESRD and very early death were not being registered?
• Or…
  ▪ Are incidence rates over time comparable?
    • eGFR levels at initiation of RRT are climbing. What would incidence rate trends look like if like-for-like comparisons were made?
Methods

- Medical Evidence Form used to measure patient characteristics at initiation of RRT 2005-2010
- Mortality rates measured weekly
Patient characteristics (%)

- < 40: 7.9%
- 40-64: 42.4%
- ≥ 65: 49.7%
- Female: 43.9%
- Hispanic: 13.7%
- Diabetes: 45.4%
- Hypertension: 28.4%
- Glomerulonephritis: 6.5%
- Cystic disease: 2%

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Patient characteristics (%)

- IHD
- GFR ≥ 15
- Nephrology care >12
- HD, fistula
- HD, graft
- HD, catheter
- PD

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Weekly mortality rates

Mortality Rate, Per 100 Patient-Years

- All
- Care ≥ 6 Mths.
- Care < 6 Mths.
- HD
- PD
(A) Among patients starting chronic dialysis (n = 303,289), the relative risk of death at each 1-week interval was compared with a reference group of patients who survived the first year of dialysis.
Weekly mortality rates

Mortality Rate, Per 100 Patient-Years

Weeks
Patient distribution at initiation, by eGFR (ml/min/1.73 m²)

Incident ESRD patients. eGFR calculated using the CKD-EPI equation.
Standardized Incidence Ratio (SIR) for 2009-2010 Vs. 2001-2002

- Subgroups defined by age, sex, race ethnicity.
- Calculate incidence rates within each subgroup for both time periods.
- SIR = actual cases/expected cases.
Standardized Incidence Ratio (SIR) for 2009-2010 Vs. 2001-2002

- All: 0.97
- 0-40: 1.06
- 40-64: 0.94
- ≥ 65: 0.98
- Male*: 1.01
- Female: 0.92
- NHW: 1.01
- NHBI/AA: 0.92
- H*: 1
- O: 0.83

* Not significant, P ≥ 0.05
SIR for 2009-2010, GFR ≥ 15

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SIR for 2009-2010, G FR < 15

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SIR for 2009-2010, GFR < 10

- All: 0.74
- 0-40: 0.81
- 40-64: 0.71
- ≥ 65: 0.75
- Male: 0.76
- Female: 0.72
- NHW: 0.75
- NHB/AA: 0.72
- H: 0.8
- O: 0.65

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SIR for 2009-2010, Pre-emptive Transplant Excluded

* Not significant, P ≥ 0.05
Conclusions

• Regarding trends in incidence of ESRD in the US, interpretation should be cautious
• Two important factors to consider are
  - Possibility that cases with early death not being registered, with different practices over time.
  - eGFR thresholds.