Prevalence of Glomerulonephritis in the U.S. Medicare Population

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Introduction

• Glomerulonephritis (GN) is serious disorder that can lead to end-stage renal disease (ESRD), other serious morbidity, or death.
• Little is known about the epidemiology of GN, since no large-scale examination of GN incidence and prevalence is available.

Methods

• The 20% Medicare sample was used for this retrospective cohort study of adults aged ≥65 years from 2007-2011.
• We divided GNS into those arising from a systemic immunologic disease (e.g., lupus) versus those that were primary in nature (that is, limited to the kidney).
• To identify primary GNs, we used a relatively specific approach requiring 2 ICD-9-CM claims ≥30 days apart for a GN, plus an additional claim for a manifestation of renal disease (e.g., hematuria, proteinuria).
• To identify GNs from primary immunologic disorders, we required ≥3 claims at least 3 days apart, plus 2 claims for a GN or manifestation of renal disease ≥30 days apart.

Results

Table 1. Basic demographic and clinical characteristics of the incident GN patients in the 20% Medicare and EGHP samples:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>20% Medicare Patients</th>
<th>EGHP Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Age (years)</td>
<td>68.0 ± 17.5</td>
<td>70.2 ± 17.3</td>
</tr>
<tr>
<td>Race</td>
<td>White</td>
<td>Black</td>
</tr>
<tr>
<td></td>
<td>Hispanic</td>
<td>Asian</td>
</tr>
<tr>
<td></td>
<td>Other/unknown</td>
<td>Other/unknown</td>
</tr>
</tbody>
</table>

Figure 1. Distribution of ICD-9-CM codes for primary GNS found in the 20% Medicare and EGHP samples.

Table 2. Incidence and prevalence of glomerulonephritis, 2007-2011, by GN category (primary vs. secondary)

<table>
<thead>
<tr>
<th>GN Category</th>
<th>Prevalence (per 100,000 persons)</th>
<th>Incidence (per 100,000 person-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>49.4</td>
<td>518</td>
</tr>
<tr>
<td>Secondary</td>
<td>16.4</td>
<td>122</td>
</tr>
</tbody>
</table>

Table 3. Rates of ESRD and death in incident GN patients, per 1000 patient-years, by category (primary versus secondary)

<table>
<thead>
<tr>
<th>GN Category</th>
<th>Rate (per 1000 patient-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>240</td>
</tr>
<tr>
<td>Secondary</td>
<td>72</td>
</tr>
</tbody>
</table>

Table 4. Hospitalization rates in incident patients with GN, per 1000 patient-years, by category (primary versus secondary)

<table>
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</tr>
<tr>
<td>Secondary</td>
<td>72</td>
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</table>

Table 5. Hospitalization burden, in days, in incident patients with GN, by category (primary versus secondary)

<table>
<thead>
<tr>
<th>GN Category</th>
<th>Rate (per 1000 patient-years)</th>
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</thead>
<tbody>
<tr>
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</tr>
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Conclusions

• For the first time, incidence and prevalence of GNS have been estimated in the Medicare population.
• Primary GNS have higher incidence, but lower prevalence, than GNS resulting from systemic immunologic diseases.
• However, progression to ESRD in incident patients with a primary GN is roughly three times as common as in patients with a GN from a systemic disease. Both rates of progression are far higher for the general population, as would be expected.
• Hospitalization burden in GN is substantial, with patients who have GNS experiencing far more days in the hospital, on average, than patients without GNS.
• Limitations include the facts that (1) detailed, patient-level data from the medical record is not available in this administrative dataset, and (2) this claims-based approach for identifying disease has not validated by medical records review, although it has been used before (Feldman CH et al, Arthritis Rheum 65:753, 2013).

References

Nephrology. 2011-2012.:

www.cdrg.org