High-Risk Vascular Disease in Japan: Evidence on Incidence and Prevalence, Patient Characteristics, and Treatment Rates From a Large Japanese Claims Database

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BACKGROUND

• Among the various forms of vascular disease, acute coronary syndromes (ACS), cerebrovascular disease (CVD) with or without ischemic stroke, peripheral arterial disease (PAD), and coronary artery disease with consistent disease (CADD) present a particularly high risk of ischemic events, limb damage, and other adverse outcomes.

• High-risk vascular disease (HRVD), including history of ACS (hACS), CADD, and PAD, accounts for approximately half of mortality and morbidity in the adult population aged 50 years and older.

• Limited published data exist from Japanese populations on the current incidence and prevalence of HRVD and its associated patient characteristics and overall treatment rates.

OBJECTIVE

• To document the incidence/prevalence, patient characteristics, and treatments of HRVD in an employed Japanese population.

METHODS

• A retrospective analysis was conducted using the Japan Medical Data Center (JMDC) database.

• The database includes inpatient, outpatient, and pharmacy claims for 381,152 lives from 2008 to 2011, representing approximately 10% of the total Japanese population.

• HRVD incidence/prevalence was estimated based on International Classification of Disease, 10th Revision (ICD-10) diagnoses for hACS, CVD, PAD, and CADD occurring 1/1/2008–12/31/2009.

• The database includes all patients of any age; however, the claim rates are weighted to reflect the general HRVD population of Japan.

• Patient demographics were measured at the study index claim.

• Comorbidities and prior treatment history were assessed over 12 months prior to the index.

• Postdischarge treatments were assessed over 24 months after the index HRVD claim.

RESULTS

HRVD Incidence/Prevalence

Overall HRVD incidence/prevalence was 2,239 per 100,000 population (Figure 1a).

By subtype (nonmutually exclusive, regardless of age), overall hACS incidence was 73 per 100,000, while prevalence of CVD, PAD, and CADD was 1,299, 837, and 931 per 100,000 population, respectively (Figure 1b).

Incidence/prevalence of all HRVD subtypes increased exponentially with age (Figure 1c).

Regardless of age, overall HRVD incidence/prevalence was higher in males (Figure 1d).

Patient Characteristics and Comorbidities

In total, 16,490 patients met the inclusion criteria for analyses of patient characteristics, comorbidities, and treatments. Mortality in the adult population aged 50 years and older.

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Patient Characteristics and Comorbidities

In total, 16,490 patients met the inclusion criteria for analyses of patient characteristics, comorbidities, and treatments.

• Mean standard deviation (SD) age at index was 52.8 (10.9) years, and 57% of included patients were male.

• Hypertension was particularly common among patients with hACS-only and CADD (approximately 83% of both groups).

• Overall comorbidity burden, as measured by the Charlson Comorbidity Index (CCI), was high for patients with hACS-only and hACS + CADD.

Treatments

Among all patients with HRVD, patients use of antplatelets and lipid-altering drugs was 32% and 15%, respectively (Figure 2a).

• Antihypertensives use during the prediabetes was highest in patients with hACS + CADD (75%) and hACS-only (57%).

• Among all patients with HRVD, during 24 months postindex, use of antplatelets and lipid-altering drugs increased to 54% and 23%, respectively (Figure 2b).

Table 2. Treatment Duration and Persistence of Selected HRVD-Related Drug Utilization During the Postindex Period, Among Patients With Use of Treatment

<table>
<thead>
<tr>
<th>Treatment</th>
<th>All HRVD Patients</th>
<th>hACS-Only</th>
<th>CVD-Only</th>
<th>PAD-Only</th>
<th>hACS + CADD</th>
<th>hACS + CVD</th>
<th>hACS + PAD</th>
<th>hACS + CADD</th>
<th>hACS + CVD + PAD</th>
<th>CADD-Only</th>
<th>Pad-Only</th>
<th>hACS + CVD + CADD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (mean ± SD)</td>
<td>52.1 ± 23.7</td>
<td>45.4 ± 23.6</td>
<td>52.1 ± 23.7</td>
<td>50.4 ± 23.6</td>
<td>58.1 ± 24.8</td>
<td>51.5 ± 23.4</td>
<td>52.6 ± 24.2</td>
<td>54.9 ± 24.5</td>
<td>60.3 ± 24.6</td>
<td>50.9 ± 23.5</td>
<td>51.4 ± 23.7</td>
<td>53.8 ± 24.5</td>
</tr>
<tr>
<td>Percent of follow-up with drug</td>
<td>67.6</td>
<td>66.0</td>
<td>67.6</td>
<td>65.4</td>
<td>70.0</td>
<td>68.5</td>
<td>69.2</td>
<td>70.8</td>
<td>75.8</td>
<td>68.3</td>
<td>68.8</td>
<td>70.3</td>
</tr>
<tr>
<td>Mean (SD) CCI</td>
<td>1.0 (1.6)</td>
<td>3.2 (2.1)</td>
<td>0.9 (1.5)</td>
<td>0.8 (1.4)</td>
<td>1.2 (1.7)</td>
<td>3.5 (1.9)</td>
<td>1.6 (2.1)</td>
<td>2.0 (2.4)</td>
<td>1.7 (2.2)</td>
<td>3.4 (1.8)</td>
<td>2.0 (2.4)</td>
<td>2.7 (2.4)</td>
</tr>
</tbody>
</table>

Table 1. Patient Characteristics and Comorbidities

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All HRVD Patients</th>
<th>hACS-Only</th>
<th>CVD-Only</th>
<th>PAD-Only</th>
<th>hACS + CADD</th>
<th>hACS + CVD</th>
<th>hACS + PAD</th>
<th>hACS + CADD</th>
<th>hACS + CVD + PAD</th>
<th>CADD-Only</th>
<th>Pad-Only</th>
<th>hACS + CVD + CADD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (%)</td>
<td>57.1</td>
<td>83.7</td>
<td>55.0</td>
<td>49.2</td>
<td>68.3</td>
<td>90.0</td>
<td>64.1</td>
<td>69.9</td>
<td>66.0</td>
<td>80.0</td>
<td>72.4</td>
<td>69.9</td>
</tr>
<tr>
<td>Charlson Comorbidity Index (CCI)</td>
<td>52.8 (10.9)</td>
<td>50.1 (10.6)</td>
<td>52.3 (11.4)</td>
<td>52.7 (10.5)</td>
<td>53.0 (10.1)</td>
<td>53.6 (7.8)</td>
<td>55.1 (10.2)</td>
<td>55.6 (11.2)</td>
<td>55.0 (10.2)</td>
<td>53.6 (10.1)</td>
<td>53.6 (10.1)</td>
<td>53.6 (10.1)</td>
</tr>
</tbody>
</table>

Figure 1. HRVD Incidence/Prevalence by Age

Figure 2. Prediabetes and Postdiabetes Treatment Utilization

TREATMENT DURATION AND PERSISTENCE

Among all patients with HRVD using an antplatelet and a lipid-altering drug, mean (SD) duration of treatment over the postindex period was 52 (23) days, which translated to a mean (SD) time to tapering of 0.2 (0.4) years (Figure 3).

Among all patients with HRVD treated with a lipid-altering drug in the postindex period, mean (SD) duration of treatment was 47 (23) days (or 65% of follow-up).

LIMITATIONS

• Study data were taken from an employed, primarily working-age population and may therefore represent a younger age distribution than the general HRVD population of Japan.

• Patients were identified for study inclusion on the basis of ICD-10 diagnostic codes recorded on billing claims, which (as with all claims-based studied) are subject to coding errors.

• Survival data were not available. Therefore, our incidence/prevalence estimates (particularly for hACS-only) could not be separated by fatal versus nonfatal events.

CONCLUSIONS AND DISCUSSION

• HRVD was not rare in the employed Japanese population analyzed, and a high proportion of cases involved multiple HRVDs.

• Our estimates of overall hACS incidence were 111 per 100,000 males and 35 per 100,000 females, these estimates are within range of several small and large population-based studies of ACS incidence in Japan.6 Limited published data from other studies were available on CVD, PAD, and CADD prevalence to compare with our findings.

• Pharmacotherapy rates after HRVD diagnosis were, in particular, for non-hACS patients, as compared with rates observed in Western countries.

REFERENCES

Please see handout.

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