The economic burden for ANCA-associated vasculitis in Germany - a claims data study

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INTRODUCTION AND AIM

ANCA-associated vasculitis AAV is a rare systemic disease, characterized by recurrent episodes of systemic inflammation. It is a severe disease associated with hospitalization and risk of renal failure and requires a therapy which induces serious side effects. The economic impact of AAV to the German health care system is currently not well understood.

The aim of this study was to better understand and quantify the economic burden of AAV in Germany. Therefore, selected aspects, such as prevalence and incidence, frequency of hospitalization, frequency of intensive care unit (ICU) stays and treatments costs, were systematically assessed in a claims data study.

METHODS

GERMAN statutory health insurance (SHI). In Germany, health insurance is mandatory. Approximately 87 % of the German population are insured via SHI. For the present study, Vifor has assessed representative data of SHI patients via the InGes database. InGes database. The InGes database contains anonymized patient and care data from over 63 German SHI companies, which are distributed all over Germany. Key information includes patient level data including demographics, ambulatory/stationary care detail, medical diagnosis and incapacity to work. The data pool covers approximately 7 million insured persons (10% of total insured population). For each patient, all data are longitudinally linked over a period of 6 years (2011-2016). From this pool, data from an age- and gender stratified representative cohort of approx. 4 million German insured persons were analyzed.

Study parameters. Patients with Granulomatosis with Polyangiitis (GPA) and Microscopic Polyangiitis (MPA) were identified through ICD-10 coding. Patient relevant data from 2011-2016 were accessed, and patients with a GPA/MPA diagnosis in 2013 were identified and followed up for the next 3 years. All patients analyzed were continually observable over this time period. Patient records must have been observable between 2011-2016, or patients deceased within that time frame. Furthermore, patients must be 18 years or older at time of diagnosis.

RESULTS

Prevalence and incidence of GPA and MPA were found to be higher than described in the previous literature.

<table>
<thead>
<tr>
<th>Data source</th>
<th>Previous literature (1-2)</th>
<th>Current study</th>
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<tbody>
<tr>
<td>Observation period</td>
<td>1998 - 2005 (1)</td>
<td>1998 - 2002 (2)</td>
</tr>
<tr>
<td>Prevalence per million people</td>
<td>137 (GPA+MPA)</td>
<td>98 (GPA) and 39 (MPA)</td>
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<tr>
<td>Prevalence extrapolated to total German population 4</td>
<td>11,234 patients</td>
<td>16,411 patients</td>
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<tr>
<td>Annual incidence per million people</td>
<td>10-12 (GPA+MPA); 8-9 (GPA) and 2-3 (MPA)</td>
<td>64 (GPA/MPA) in 2013</td>
</tr>
<tr>
<td>Annual incidence extrapolated to total German population 4</td>
<td>820 - 984</td>
<td>3,000 (in 2013)</td>
</tr>
<tr>
<td>Hospitalization rate (%)</td>
<td>3,150 (average 2013-2016)</td>
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Table 1. Previous Germany specific publications were based on the German vasculitis registry, located in Bad Bramstedt (1, 2). Between 1998 and 2002/2005, a prevalence of GPA + MPA of 137 patients per million people and an incidence of 10-12 patients per million people was calculated from the registry. In the current study, assessing health records of anonymized patients from 2013 to 2016, a higher prevalence and incidence rate of both, GPA and MPA, was found: a prevalence of 260 patients per million people and an incidence of 50 patients per million people was found for Germans 21 years of age. Since the prevalence and incidence rates appear to be stable between 2013 and 2016, the observed difference between the two data sources is believed to arise from the two types of sources. A study of the analysis and extrapolation in the current study was confined to the population 21 years of age: GPA: Granulomatosis with Polyangiitis; MPA: Microscopic Polyangiitis.

Figure 1. (A) The majority of patients receives a GPA/MPA diagnosis in hospitals. (B) Most ambulatory GPA diagnoses are made in family medicine practices. For MPA, family medicine and nephrology each diagnose >10 % of the cases. 14 % of GPA patients and 22 % of MPA patients were diagnosed by different specialists within the quarter of diagnosis, therefore the combined numbers exceed 100 %. Especially GPA seems to be known to physicians and is frequently diagnosed by family medicine practitioners.

GPA and MPA are associated with medical emergencies treated in intensive care units.

Figure 3. Patients diagnosed with GPA and MPA were frequently treated at ICUs (in average 1 stay per quarter). Especially severe infections and renal involvements increased the likelihood of ICU stays. GPA: Granulomatosis with Polyangiitis; MPA: Microscopic Polyangiitis; ICU: intensive care unit.

Total costs for AAV are significant during induction and the subsequent maintenance period.

Figure 4. Total costs for AAV patients during induction (3 quarters starting from diagnosis) range between €88,137 and €94,137 for GPA/MPA, respectively (average costs). Subsequent cumulative costs for induction and three years post treatment ranged from €70,641- €94,889. Severe kidney disease (occurred in up to 11.25% of AAV patients within four years post treatment) is a key driver of increasing cumulative patient costs ranging from €131,521-€145,472 for GPA/MPA. Approximately 10% of GPA patients and 18% of MPA patient required renal replacement therapy already in the induction period. GPA: Granulomatosis with Polyangiitis; MPA: Microscopic Polyangiitis.

CONCLUSIONS

AAV represents an underestimated financial burden to the German healthcare system, especially during induction therapy. The high level of hospitalizations amongst AAV patients also represents a high usage of healthcare resources. Thus, AAV represents an underestimated cost factor for the German health care system, and better treatment options are desperately needed.


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