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 InGef database.

InGef database. The InGef 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, medication, medical aids 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.

	Previous literature (1;2)	Current study
Data source	Extrapolation from local vasculitis registry	Extrapolation from health insurance records of a representative cohort, data limited to ≥18 years of age
Observational period	1998 - 2005 (1) 1998 - 2002 (2)	2013 and the average of 2013 - 2016
Prevalence per million people	**137** (GPA+MPA) 98 (GPA) and 39 (MPA) (1)	**242** (GPA+MPA) in 2013 **260** (GPA+MPA) average 2013-2016
Prevalence extrapolated to total German population[A]	**11,234 patients**	**16,411 patients** in 2013 **17,543 patients** average 2013-2016
Annual incidence per million people	10-12 (GPA+MPA): 8-9 (GPA) and 2-3 (MPA) (2)	**44** (GPA+MPA) in 2013 **50** (GPA+MPA) average 2013-2016
Annual incidence extrapolated to total German population[A]	**820 – 984**	**3,000** (in 2013) **3,150** (average 2013-2016)

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 insurance 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 ≥18 years of age. Since the prevalence and incidence rates appeared 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]: the analysis and extrapolation in the current study was confined to the population ≥18 years of age. GPA: Granulomatosis with Polyangiitis, MPA: Microscopic Polyangiitis

RESULTS

GPA and MPA are diagnosed in the inpatient and outpatient setting.

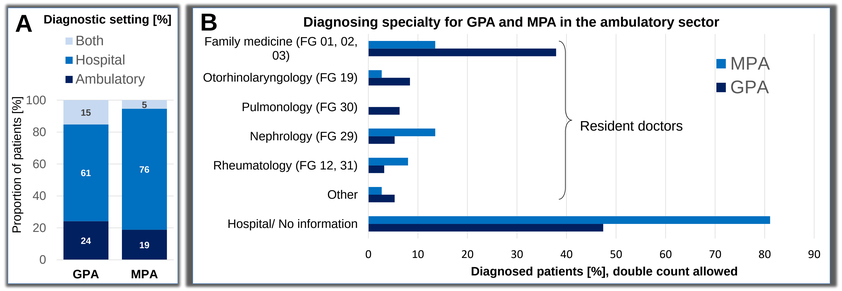

Figure 1. (A) The majority of patients receives a GPA/MPA diagnosis in hospitals.

(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 specialties 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 practicioners.

GPA: Granulomatosis with Polyangiitis, MPA: Microscopic Polyangiitis, FG: medical specialist group (German: "Fachgruppe")

Over 90% of patients with GPA/MPA were hospitalized during the induction treatment period of which 60% were hospitalized due to an active GPA/MPA diagnosis.

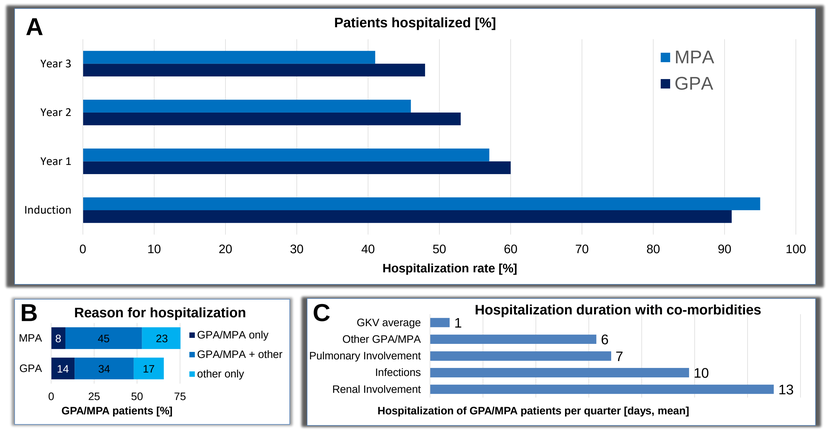

Figure 2. (A) In total, 97 % of GPA/MPA patients are hospitalised within 4 years following diagnosis. 91 % and 95 % of GPA/MPA patients are hospitalised during induction therapy (first 3 quarters starting with diagnosis). Following induction, the percentage of patients requiring hospitalisation decreases to approximately 50%.

(B) Of the hospitalized patients, 14 % / 8 % were hospitalized only because of GPA/MPA, respectively. 34 % (GPA) and 45 % (MPA) were hospitalized multiple times, due to GPA/MPA and due to other diseases. 23 % (GPA) and 17 % (MPA) of GPA/MPA patients were hospitalized due to diseases different from GPA/MPA, only. Those results indicate a high rate of severe co-morbidities among GPA/MPA patients.

(C) Patients with GPA/MPA spend on average 6 days per quarter in the hospital, infections and renal involvement prolong hospitalization. The analysis is based on discharge diagnosis.

GPA: Granulomatosis with Polyangiitis, MPA: Microscopic Polyangiitis

RESULTS

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

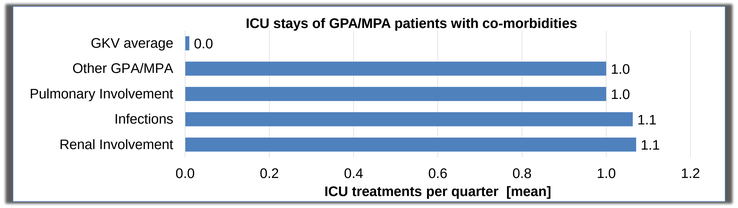

Figure 3. Patients diagnosed with GPA and MPA were frequently treated at ICUs (in average 1 stay per quarter). Especially severe infections and renal involvements increased the likelihood of ICU stays.

GPA: Granulomatosis with Polyangiitis, MPA: Microscopic Polyangiitis, ICU: intensive care unit

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

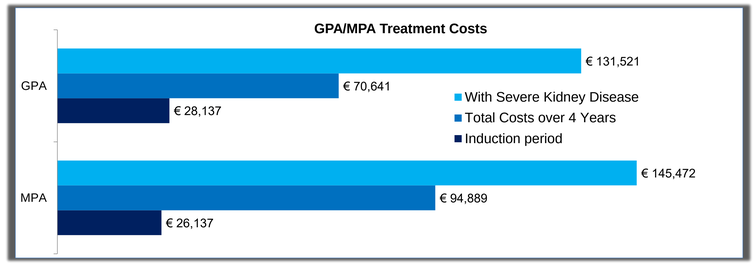

Figure 4. Total costs for AAV patients during induction (3 quarters starting from diagnosis) range between €28,137 and €26,137 for GPA/MPA, respectively (average costs). Subsequent cumulative costs for induction and three years post treatment ranged from €70,641- €94,889. Severe kidney disease (occurred 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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