EPIDEMIOLOGY, TREATMENT, AND HEALTH RESOURCE USE OF GOUT PATIENTS IN GERMANY:
RESULTS FROM AN ANALYSIS OF A CLAIMS DATABASE

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Co-authors and conflicts of interest

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Agenda

- Background
- Objectives
- Methods
- Results
- Conclusions
Background

- Gout is caused by chronic elevation of uric acid above saturation point of 6.8mg/dl
- The Global burden of gout is substantial and is increasing across the world.\(^{(1)}\)
- Gout is the most common form of inflammatory arthritis in Germany.\(^{(2)}\)
- Prevalence in Germany was approximately 1.4% (2000 to 2005).\(^{(3)}\)

References:
Objectives

This study aimed to provide an up-to-date analysis on

- Prevalence and incidence
- Associated comorbidities
- Current treatment patterns
- Health resource use and costs

Agenda

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Methods

Data source: InGef research database

- Anonymized healthcare claims database

- ~7.2 million insured members of 61 contributing statutory health insurances (July 2018)

- App. 4 million patients included in study

- Sample is representative for German population in terms of age and sex

Fig. 1. Variables in InGef research data base
Methods

Study design
- Cohort study
- Gout cases analyzed according to comorbidities and pharmacological treatment
- Age- and sex-matched control group (without gout) for comparison

Inclusion criteria
- Continuous insurance from 1st Jan. 2016 – 31st Dec. 2016 or until death
- Continuous insurance from 1st Jan. 2015 – 31st Dec. 2015 (baseline period)
- Defined gout case

<table>
<thead>
<tr>
<th>Patients with a primary hospital diagnosis of gout (ICD-10 GM codes M10) OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one verified ambulatory diagnosis or one secondary hospital diagnosis of gout (ICD-10 GM codes M10) and at least one claim for uric acid test in ambulatory care in the same or following quarter or at least one prescription treatment of urate lowering therapy or gout flare in the same or following quarter</td>
</tr>
</tbody>
</table>

Clinical characteristics and health resource utilization
- Significance testing done by appropriate statistical tests between case (gout) and control group (without gout)
- Significance level: p<0.05

Statistical analysis
Prevalence/ incidence
- Calculation per 100 persons and 95%-confidence intervals (binomial distribution)
- Overall and stratified by sex and age-group
- Standardization according age and sex distribution of total German population in 2016
Results: Epidemiology

- Mean age: 44.8 years
- Sex: 49% women

Prevalence:
- Overall: 1.63% (1.62% - 1.64%)
- 18-65 years: 1.25% (1.23% - 1.26%)

Incidence:
- Overall: 0.45% (0.44% - 0.46%)
- 18-65 years: 0.38% (0.37% - 0.39%)

Gender ratio (M vs. F):
- 3.2 prevalence
- 2.7 incidence

Fig 2. Prevalence and incidence of gout stratified by sex and age groups in 2016*

* n=62,425 gout cases and control cases respectively
Results: Comorbidities

Fig 3. Distribution of comorbidities* in cases with and without gout in 2016**

- For all categories: p<0.001
- n=62,425 gout cases and control cases respectively

Results: Comedications

- Gout cases receive more medications than non-gout patients 8.7 (SD: 5.5) vs. 5.2 (SD: 4.7)
- ≥9 different medications in 44% vs. 20%
- Most common medications were
  - NSAIDs (49% gout vs. 27% without gout)
  - Beta blocking agents (49% vs. 30%)
  - Lipid lowering drugs (35% vs. 23%)

Table 2. Medication intake in gout cases compared to control group without gout

<table>
<thead>
<tr>
<th>Comedications</th>
<th>Gout cases</th>
<th>Control group</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Acetylsalicylic acid</td>
<td>7,311</td>
<td>11.7</td>
<td>5,476</td>
</tr>
<tr>
<td>Antidiabetic drugs</td>
<td>14,298</td>
<td>22.9</td>
<td>8,190</td>
</tr>
<tr>
<td>Beta blocking agents</td>
<td>30,656</td>
<td>49.1</td>
<td>18,806</td>
</tr>
<tr>
<td>Glucocorticoids</td>
<td>9,906</td>
<td>15.9</td>
<td>4,936</td>
</tr>
<tr>
<td>Lipid lowering drugs</td>
<td>21,827</td>
<td>35.0</td>
<td>14,472</td>
</tr>
<tr>
<td>NSAIDs</td>
<td>30,823</td>
<td>49.4</td>
<td>16,977</td>
</tr>
</tbody>
</table>
Results: Inpatient stays and outpatient visits

- 29% of gout cases were hospitalized in 2016
- All gout cases had at least one ambulatory physician contact in 2016
- Significantly more outpatient 12.1 vs. 9.22 and inpatient 0.5 vs. 0.34 visits (p<0.001)
- Patients aged ≤65 years had more sick leave days 6.9, vs. 4.6 than cases without gout

Table 3. Inpatient stays and outpatient visits of cases with and without gout

<table>
<thead>
<tr>
<th>Provider</th>
<th>No of utilizations within one year</th>
<th>Gout cases</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>44,194</td>
<td>70.8</td>
<td>49,351</td>
</tr>
<tr>
<td>1</td>
<td>10,860</td>
<td>17.4</td>
<td>8,566</td>
</tr>
<tr>
<td>2</td>
<td>4,098</td>
<td>6.6</td>
<td>2,714</td>
</tr>
<tr>
<td>3+</td>
<td>3,273</td>
<td>5.2</td>
<td>1,794</td>
</tr>
<tr>
<td>Outpatient physician</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>&lt;5</td>
<td>/</td>
<td>3,932</td>
</tr>
<tr>
<td>1</td>
<td>271</td>
<td>0.4</td>
<td>2,285</td>
</tr>
<tr>
<td>2</td>
<td>687</td>
<td>1.1</td>
<td>2,353</td>
</tr>
<tr>
<td>3+</td>
<td>61,466</td>
<td>98.5</td>
<td>53,855</td>
</tr>
</tbody>
</table>

Results: Health service utilization costs

Fig 4. Health service utilization costs* of gout cases compared to patient without gout (age- and sex- standardized) in 2016**

* For all categories: p<0.001
** n=62,425 of gout and control group
Conclusions

Study data of gout patients in Germany indicates...

1.35 million prevalent and 0.35 million incident cases

More comorbidities, in/outpatient visits, and higher need for multiple medications compared to patients without gout

Overall costs for HSU per gout patient per year is >40% higher than for patients without gout
References


