Patient journey leading to generalized pustular psoriasis (GPP)

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Our findings may help to facilitate early diagnosis and, therefore, promote timely treatment interventions for GPP

PURPOSE

We conducted a retrospective study using machine learning and data mining methods to define the patient journey (disease trajectory) before a confirmed diagnosis of GPP.

INTRODUCTION

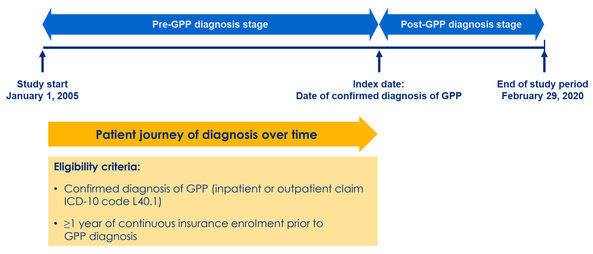
- The clinical course of GPP can be characterised as relapsing with recurrent flares or persistent with intermittent flares[1,2]
- Case reports are available that describe the disease trajectory of individual patients prior to a diagnosis of GPP; 30–60% of patients have prior or concomitant PV[2–7]
  - However, no population-level information is available
- A better understanding of the patient journey is essential for improving disease awareness and facilitating early diagnosis of GPP

CONCLUSIONS

- This is the first real-world study of short- and long-term patient journeys before a confirmed diagnosis of GPP
- Patients with GPP often have prior or concomitant PV, which was identified in the network pattern analysis, supporting the validity of this method
- Diagnoses first made within 120 days of GPP diagnosis highlight several differential diagnoses that physicians should exclude in reaching a GPP diagnosis

METHODS

Study design



- **Primary outcome:** Disease trajectory before confirmed diagnosis of GPP
  - Network analysis
  - Sequential pattern mining
- **Secondary outcome:** Frequency of other disease diagnoses in pre-diagnosis stage
- **Further outcomes**: Time to GPP diagnosis

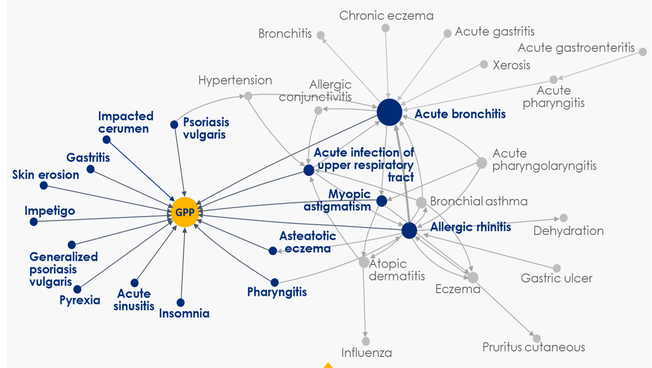
RESULTS

Demographics of the study cohort (N=189)

Characteristic	N=189
Sex, n (%)	
Male	108 (57.1)
Female	81 (42.9)
Age at index GPP diagnosis, years	
Median	39
Range	1–74
Age group in years at index GPP diagnosis, n (%)	
0–9	23 (12.2)
10–19	24 (12.7)
20–29	18 (9.5)
30–39	33 (17.5)
40–49	25 (13.2)
50–59	35 (18.5)
60–69	25 (13.2)
70–79	6 (3.2)

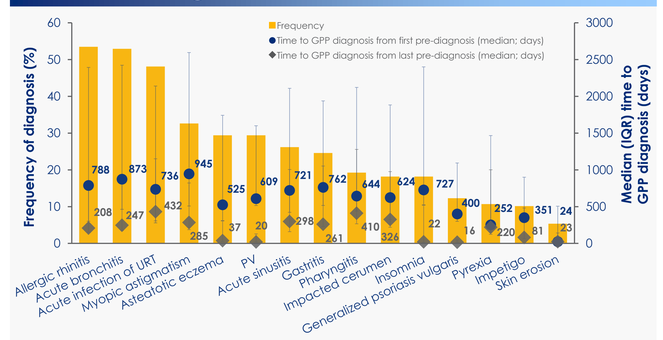
57.1% of patients were male and 42.9% of patients were female; median age at index GPP diagnosis was 39 years (range 1–74)

Network pattern of disease trajectory before GPP diagnosis



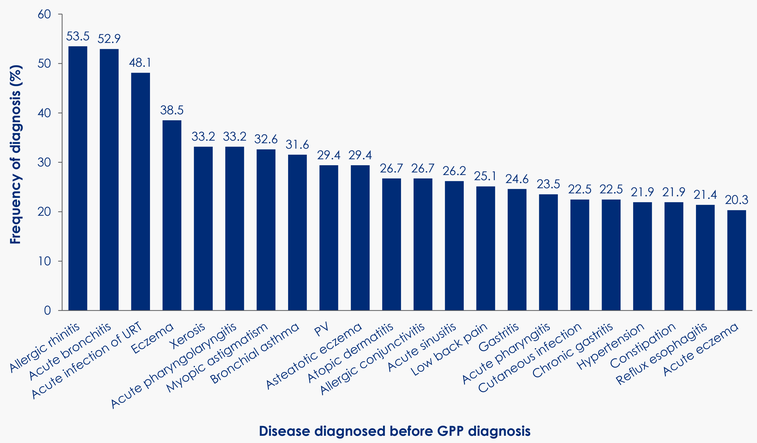
Of the diseases diagnosed prior to GPP, 31 appeared in the network pattern and 15 appeared in the direct network node

Time to GPP diagnosis for the 15 diseases connected to GPP



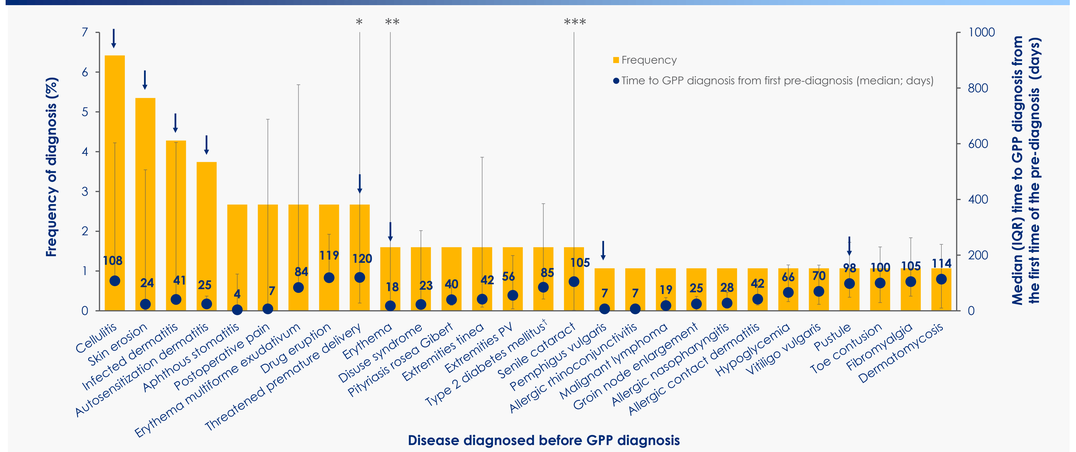
Median time to a GPP diagnosis for the 15 diseases directly connected to GPP on the network pattern ranged from 16 to 432 days (from last pre-diagnosis) and 24 to 945 days (from first pre-diagnosis)

Diagnoses (n=22) prior to GPP diagnosis occurring in ≥20% of patients



The most frequent diagnoses prior to GPP diagnosis were allergic rhinitis (53.5%), acute bronchitis (52.9%), acute infection of the URT (48.1%) and eczema (38.5%); a diagnosis of PV preceded GPP in 29.4% of patients with a GPP diagnosis

Diagnoses made within 120 days prior to GPP



*Q3=2268 days; **Q3=1178 days; ***Q3=1324 days. †Type 2 diabetes mellitus without diabetic complications.

Diagnoses made ≤120 days before a GPP diagnosis included skin diseases and symptoms, e.g., skin erosion; differential diagnoses such as infected dermatitis, autosensitization dermatitis, and pemphigus vulgaris; potential triggers of GPP, including cellulitis and pregnancy (threatened premature delivery); and symptoms observed at GPP onset, e.g., erythema and pustules

Abbreviations

GPP, generalized pustular psoriasis; ICD-10, International Classification of Diseases, Tenth Revision; IQR, interquartile range; JMDC, Japan Medical Data Center; PV, psoriasis vulgaris; Q, quartile; URT, upper respiratory tract.

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