

Cardiovascular Risk and Comorbidity Burden in Japanese Patients with Myasthenia Gravis: A Retrospective Cohort Study

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KEY TAKEAWAYS



Two-thirds of patients with generalized MG in Japan have at least one CV risk factor or comorbidity



The most common CV risk factors were hypertension and hyperlipidemia, and the most common CV comorbidity was heart failure (with hospitalization)



CV comorbidities rarely occurred in isolation – most patients with CV comorbidities also had CV risk factors



Findings emphasize the need to consider CV risk alongside other disease and patient characteristics in the management of MG, including cautious use of MG treatments that may exacerbate CV risk factors

BACKGROUND

- MG is a rare, chronic, IgG-mediated, neuromuscular autoimmune disease that causes debilitating muscle weakness^{1,2}
- Patients with MG may have elevated CV risk due to MG-related pathophysiologic factors or reduced exercise capacity^{3,4}
- Certain immunomodulatory therapies for MG may also exacerbate CV risk factors through effects on blood pressure, plasma glucose (e.g., glucocorticoids), or plasma lipid levels (e.g., nipocalimab), or can cause adverse cardiac reactions (e.g., rituximab)⁵⁻⁹
- Characterizing the CV burden associated with MG is therefore important to inform therapeutic decision-making in this population

OBJECTIVES

- To evaluate the prevalence of CV risk factors and comorbidities among patients with generalized MG in Japan using a large and comprehensive real-world dataset

METHODS

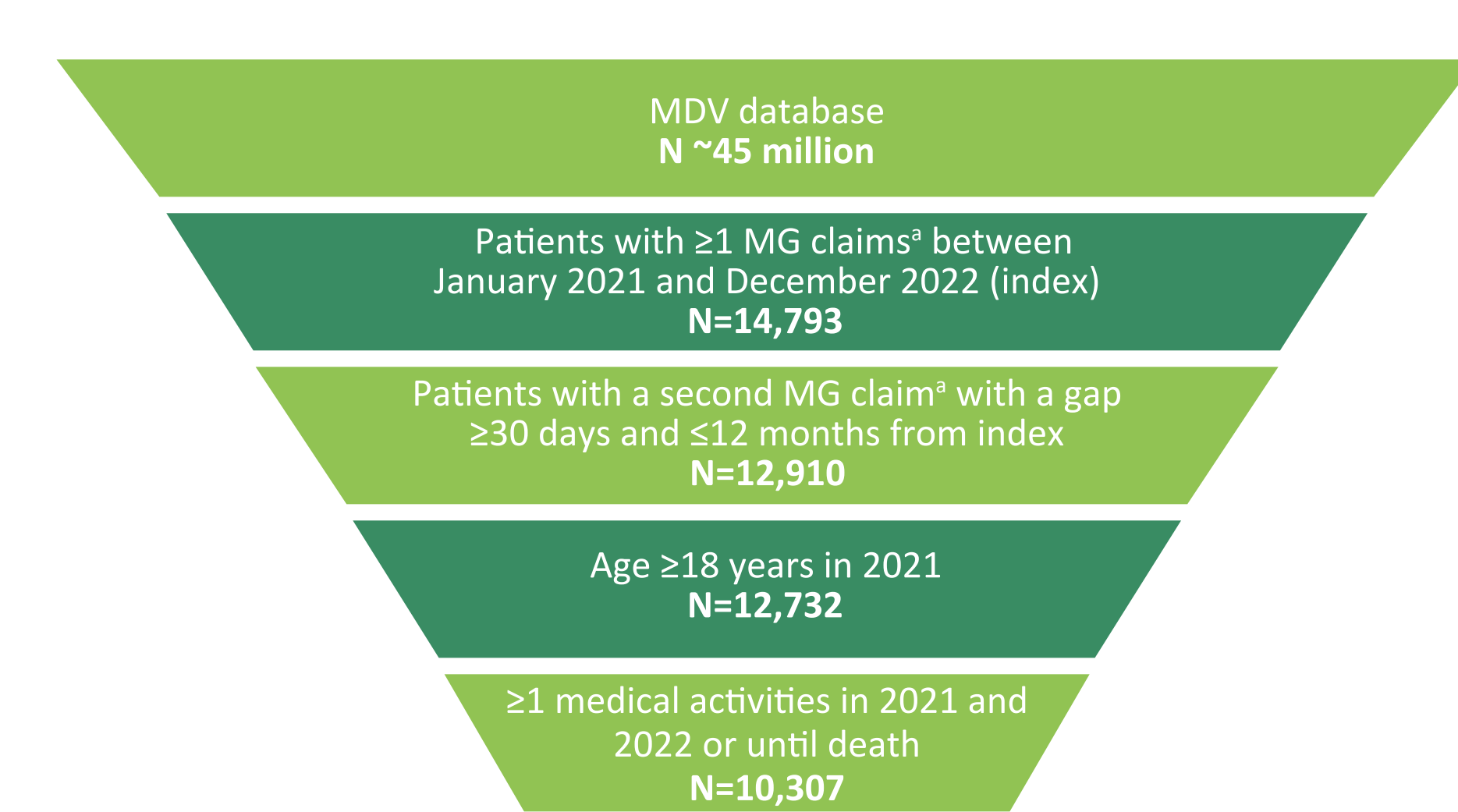
Study Design and Population

- This was a retrospective, observational study using de-identified patient data from the MDV Database in Japan, which contains administrative data from >480 hospitals on ~45 million patients¹⁰
- Adult patients (age ≥18 years) were included who had ≥2 claims with a diagnosis code for generalized MG between January 2021 and December 2022, and ≥1 medical activities in each of 2021 and 2022 or until death (Figure 1)

Outcomes and Statistical Analyses

- Demographic characteristics (age and sex) were evaluated at the start of the assessment period (January 2021) and clinical characteristics during 2021 and 2022
- CV risk factors and CV comorbidities were assessed using ICD-10 codes during 2021 and 2022
- Data were stratified by age groups 18–40, >40–65, and >65 years

FIGURE 1 Patient Attrition



*Disease codes: 3580006, 8830896, 8846112, 8846113, 8846179, and 3589004.

RESULTS

Patient Characteristics

- 10,307 adult patients with MG were included in the analysis (Figure 1)
- The mean age was 64.0 years, 56.6% were female, 28.0% had a CCI score of ≥3, and 47.3% had long-term glucocorticoid use (cumulative duration ≥90 days) (Table 1)

CV Risk Factors

- Overall, most MG patients had ≥1 CV risk factors (61.9%), 33.6% had ≥2 risk factors, and 10.9% had ≥3 risk factors (Figure 2)
- CV risk factors increased with age: 31.5% of patients aged 18–40 years, 56.6% of those aged >40–65 years, and 69.7% aged >65 years had ≥1 CV risk factors (Figure 2)
- The most common CV risk factors were hypertension (44.0%) and hyperlipidemia (40.1%) (Figure 3)

CV Comorbidities

- Almost one-third of patients with MG (29.8%) had ≥1 CV comorbidities, 10.4% had ≥2 comorbidities, and 3.6% had ≥3 comorbidities (Figure 4)
- CV comorbidities increased with age: 10.9% of patients aged 18–40 years, 21.5% of those aged >40–65 years, and 37.9% aged >65 years had ≥1 CV comorbidities (Figure 4)
- The most common CV comorbidities were heart failure (with hospitalization; 16.5%), angina pectoris (10.7%), and cerebrovascular accident (9.0%) (Figure 5)
- Most patients with CV comorbidities also had ≥1 CV risk factors (85.5%; n=2627 of 3074) (Figure 6)

TABLE 1 Demographic and Clinical Characteristics of Patients with MG in Japan

Characteristic	Patients with MG N=10,307
Age, ^a years, mean (SD)	64.0 (15.2)
Age group, ^a years, n (%)	
18–40	791 (7.7)
>40–65	3780 (36.7)
>65	5736 (55.7)
Female, n (%)	5833 (56.6)
CCI score, ^b mean (SD)	1.86 (2.15)
CCI category, ^b n (%)	
0	3222 (31.3)
1–2	4203 (40.8)
3–4	1818 (17.6)
≥5	1064 (10.3)
Non-MG-related hospitalizations, n (%)	3446 (33.4)
Autoimmune conditions, ^b n (%)	2945 (28.6)
Long-term glucocorticoid use, ^c n (%)	4878 (47.3)

^aAge was recorded at the start of the assessment period (January 2021).
^bCCI and autoimmune conditions were recorded during the 2-year assessment period (2021–2022).
^cCumulative duration ≥90 days.

FIGURE 2 Number of CV Risk Factors Among Patients with MG by Age Category (N=10,307)

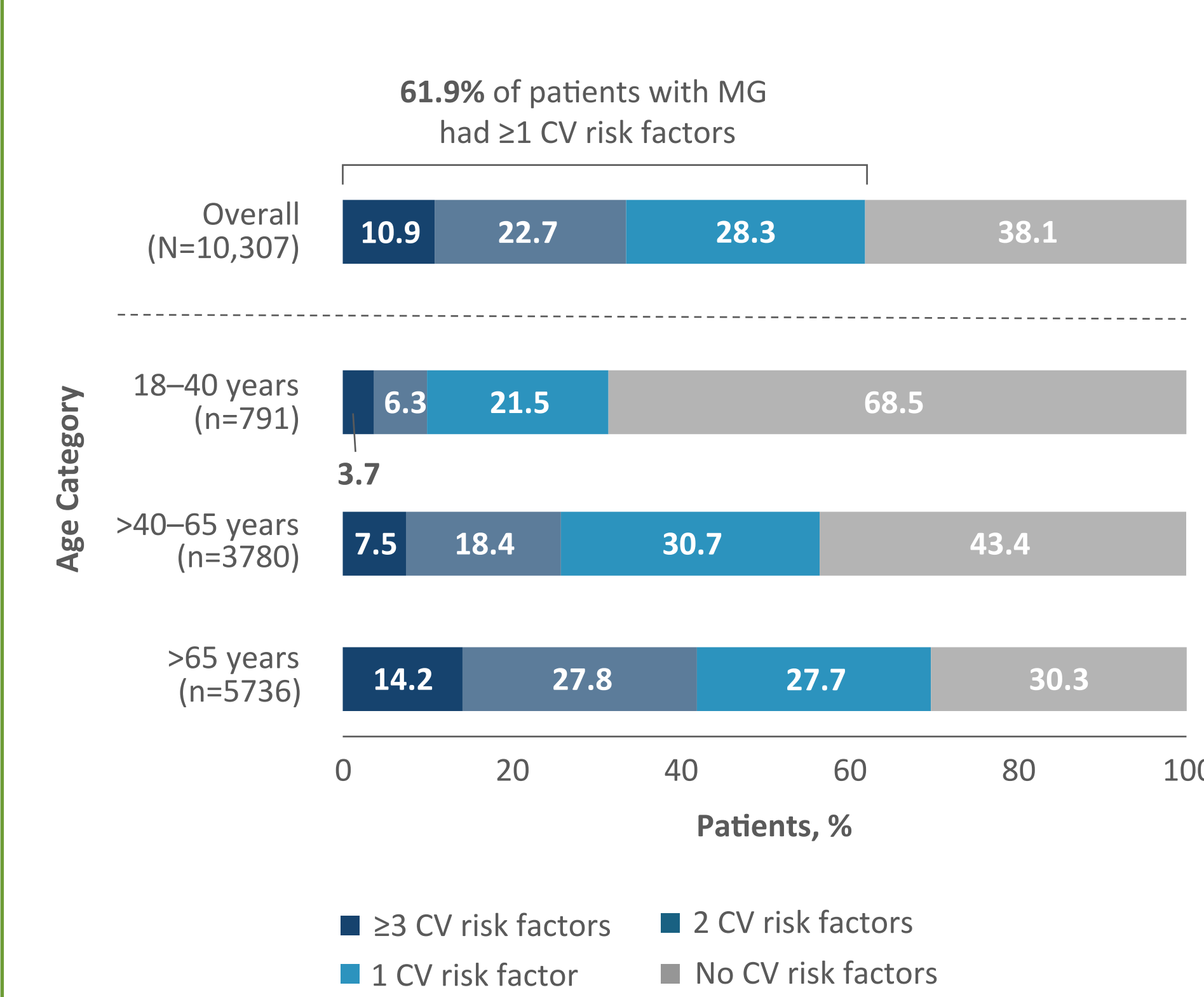
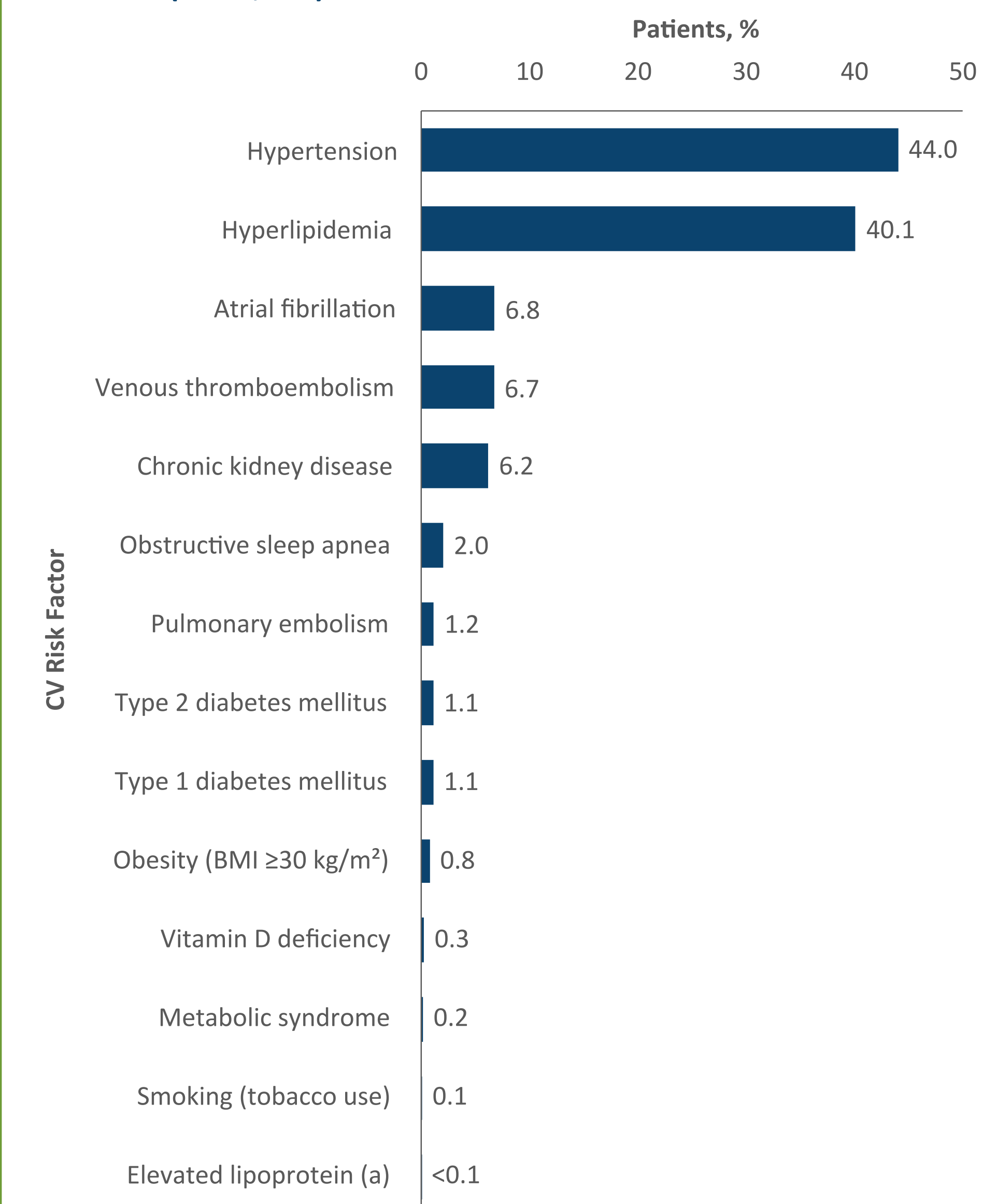


FIGURE 3 Prevalence of Individual CV Risk Factors Among Patients with MG (N=10,307)



STUDY LIMITATIONS

- Diagnoses were based on billing and administrative data subject to diagnostic or coding inaccuracies
- Smoking information may not have been fully collected in the MDV Database

FIGURE 4 Number of CV Comorbidities Among Patients with MG by Age Category (N=10,307)

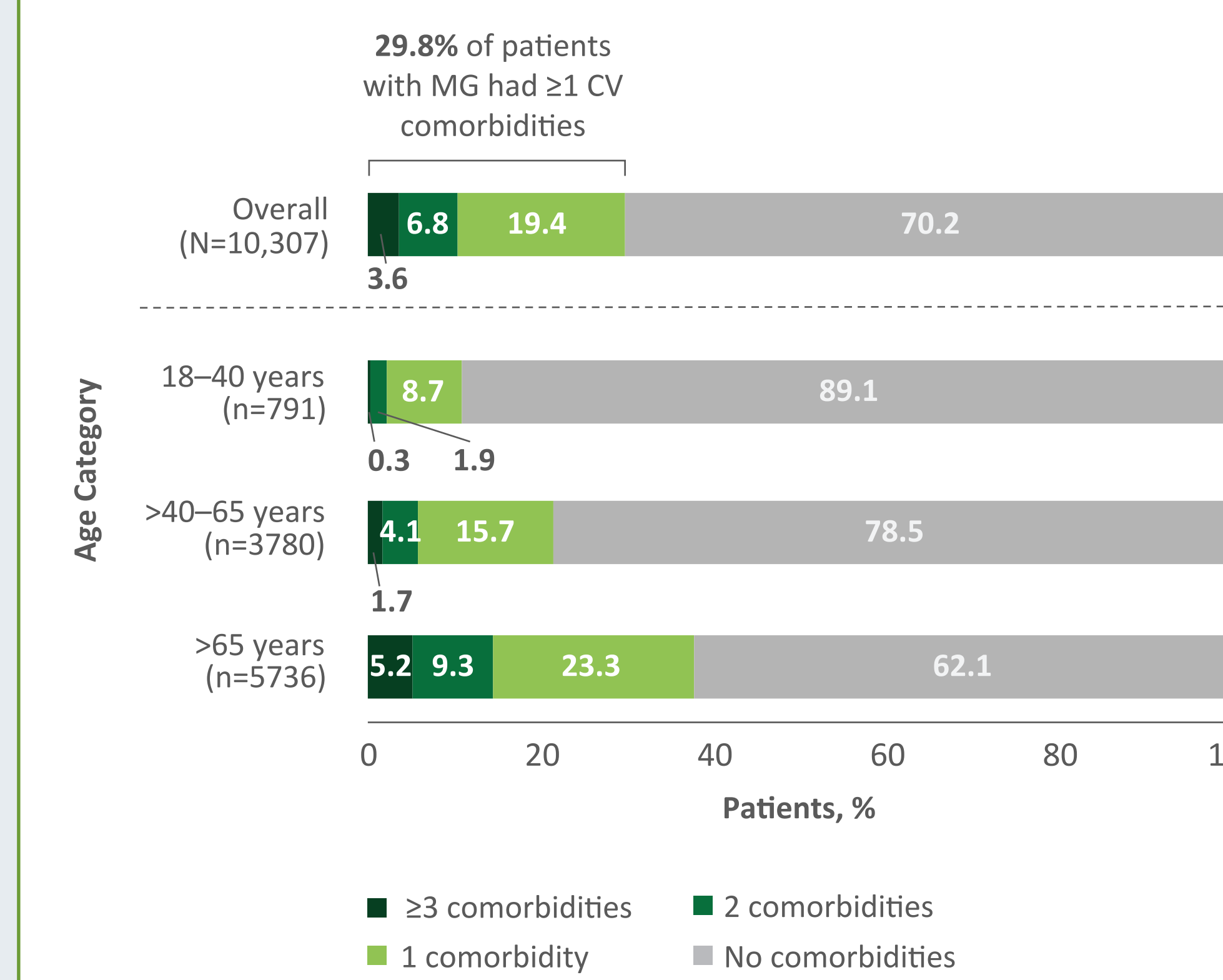
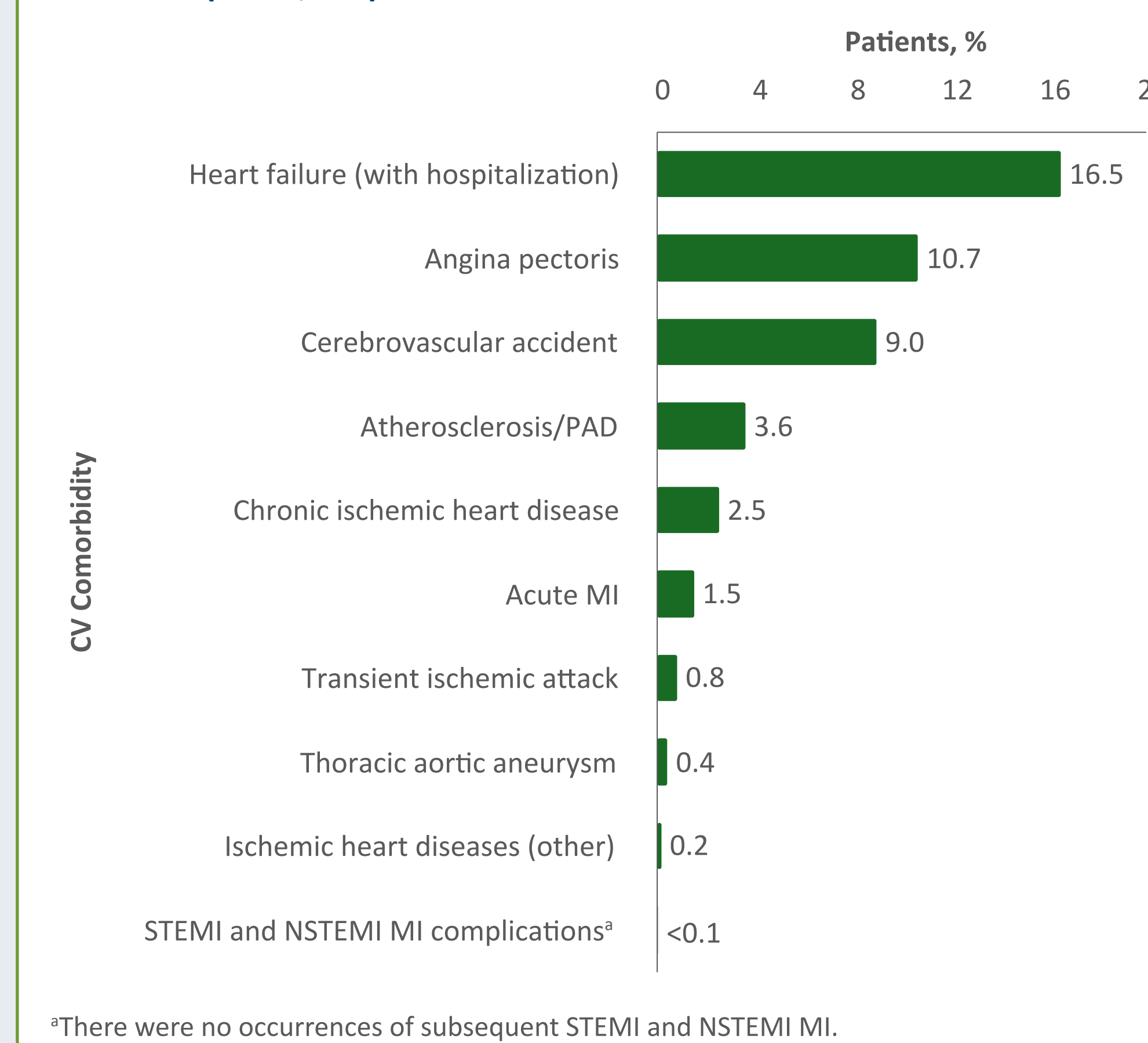
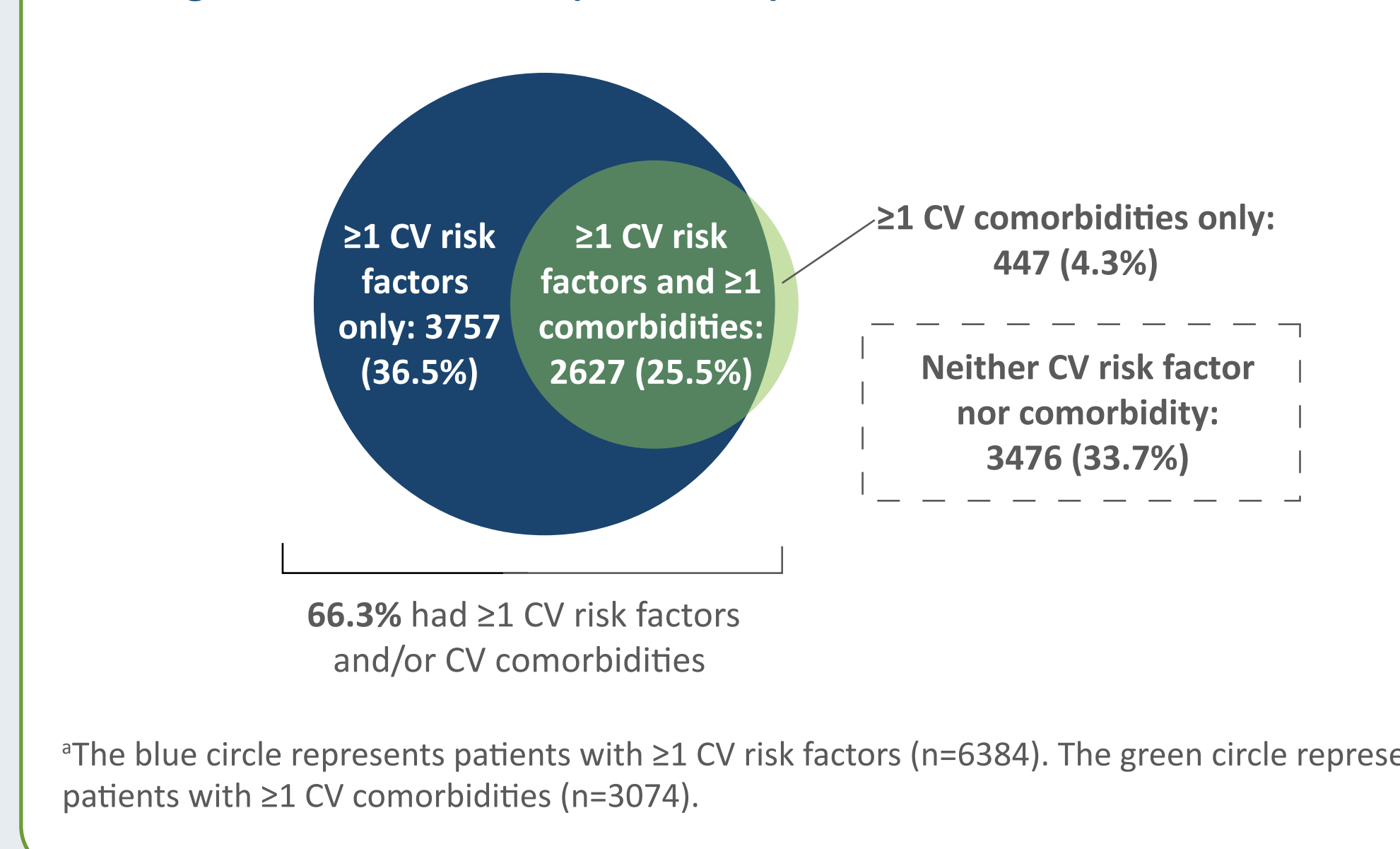


FIGURE 5 Prevalence of Individual CV Comorbidities Among Patients with MG (N=10,307)



*There were no occurrences of subsequent STEMI and NSTEMI MI.

FIGURE 6 Co-Occurrence of CV Risk Factors and CV Comorbidities Among Patients with MG (N=10,307)*



ABBREVIATIONS

BMI, body mass index; CCI, Charlson Comorbidity Index; CV, cardiovascular; ICD-10, International Classification of Diseases, 10th revision; IgG, immunoglobulin G; MDV, Medical Data Vision Co., Ltd; MG, myasthenia gravis; MI, myocardial infarction; NSTEMI, non-ST-elevation MI; PAD, peripheral arterial disease; SD, standard deviation; STEMI, ST-elevation MI.

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