SEASONAL, REGIONAL, AND CIRCADIAN VARIATIONS OF ACUTE MYOCARDIAL INFARCTION: FINDINGS FROM THE GET WITH THE GUIDELINES-CORONARY ARTERY DISEASE (GWTG-CAD) PROGRAM

Poster Contributions
Poster Hall B1
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Session Title: Epidemiology of ACS Events: Of Comorbidity and Long Term Trends
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Background: We evaluated seasonal and circadian variations in patients presenting with acute myocardial infarction (AMI), regional differences in these variations and their relationship to quality and outcomes in a large national database.

Methods: Using data from GWTG-CAD, we analyzed 82,971 consecutive acute myocardial infarction (AMI) patients treated at 276 US centers from 2003 to 2008.

Results: The number of admissions with non-ST segment elevation myocardial infarction (NSTEMI) was highest in winter and lowest in spring season (14,645 vs. 13,613 admissions, p<0.01). Seasonal variation was less obvious with STEMI admissions (p=0.30). Seasonal variation in AMI was predominant in West region (p<0.01) and was not seen in Northeast region (p=0.18). The distribution of length of stay and door to balloon time were significantly different across all four seasons (p<0.01), with highest occurring in winter, but differences in in-hospital mortality were not significant. Most patients with AMI presented between 8 am and 4 pm with a peak close to 11 am, while 10 pm to 4 am was the quietest time (figure). There was no difference in in-hospital mortality based on time of arrival when stratified for different seasons.

Conclusion: Seasonal variation with winter predominance was more obvious with NSTEMI admissions compared to STEMI admissions, and varied by region. These findings suggest that seasonal variation in AMI may be, at least in part, impacted by variables independent of climate.