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POSTER ABSTRACTS

906.OUTCOMES RESEARCH-MYELOID MALIGNANCIES

Metabolic Syndrome Among Patients with Myelodysplastic Syndrome: A Population Analysis

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Introduction: Metabolic syndrome (MS) comprises a cluster of cardiovascular risk factors, including central obesity, dysglycemia, elevated blood pressure (BP), increased triglyceride levels (HyperTG), and low HDL cholesterol levels. Epidemiologic and clinical data suggest that MS may be an important etiologic factor in the progression of certain cancer types. These studies have excluded patients with myelodysplastic syndromes (MDS), but MS may be relevant in these patients owing to the link between cardiovascular disease and MDS derived from clonal hematopoiesis. We conducted a population-based analysis to define the prevalence of MS and its components among patients with MDS and explore the effect of MS on MDS outcomes.
Methods: We identified patients aged 66 and older diagnosed with MDS between 2007 and 2017 using the SEER-Medicare database. Preexisting MS was identified using ICD-9/10 codes in claims from at least 12 months before MDS diagnosis. MS was defined as the presence of 3 or more of the 5 MS components. MDS histologic risk was defined based on ICD-O-3 morphology codes. Transfusion dependence, defined as 2 or more transfusions within 8 weeks of MDS diagnosis date, and therapy with hypomethylating agents (HMA), lenalidomide and erythropoietin stimulating agents (ESA) were defined from HCPCS codes and prescription records. Other variables defined included age, sex, race/ethnicity, rurality (using RUCC codes), marital status, and socioeconomic status [SES] (using the Yost index). Descriptive statistics were used to define the frequency of MS and its components. MDS outcomes of interest were transformation to acute myeloid leukemia (AML), defined from ICD-9/10 codes for AML, and overall survival (OS), defined as the time between MDS diagnosis and death from any cause. Cox proportional hazards regression was used to determine the association between MS and AML transformation and OS, through adjusted hazard ratios (HR).
Results: A total of 15,227 cases diagnosed with MDS between 2007 and 2017 were analyzed, including 3,402 (22.3%) with baseline MS. High BP was present in 72.2%, HyperTG in 47.8%, dysglycemia in 35.5%, central obesity in 4.6% and 0.5% had low HDL cholesterol. The prevalence of MS and the distribution of its components did not significantly differ based on MDS histologic risk (Table 1). The prevalence of hyperTG was notably higher in patients with MDS, especially in the high histologic risk category (50.4%). Compared to other MDS patients, those with preexisting MS were predominantly male (55.5% vs 53.3%, p=0.03) of non-White race (6.7% vs 4.8% non-Hispanic Black, p<0.01, and 2.1% vs 1.5% Hispanic, p<0.01), from urban/metropolitan areas (87.7% vs 86%, p=0.01) and lower SES quintiles 1 and 2 (34.2% vs 31.5%, p<0.01). In a model adjusting for age, sex, race/ethnicity, rurality, marital status, SES, MDS risk, transfusion dependence and MDS therapies (HMA, lenalidomide and ESA), baseline MS at the time of MDS diagnosis was not associated with a significant effect on the risk of AML transformation (HR=1.0, 95%CI 0.9-1.2) or the risk of death from any cause (HR=1.0, 95%CI 0.9-1.1) (Table 2). In models assessing the effect of MS subcomponents on MDS outcomes, high BP (HR=1.0, 95CI% 1.0-1.1) and obesity (HR=1.1, 95CI% 1.0-1.2) were associated with an increased risk of mortality. Obesity was also associated with an increased risk of transformation to AML (HR=1.3, 95CI% 1.0-1.6).
Conclusions: The overall prevalence of MS among patients with MDS appears similar to that reported in the general population and does not differ based on the histologic risk category. The observed prevalence of HyperTG was higher than expected, particularly in high-risk MDS patients. Older males of non-White race from urban/metropolitan areas of lower SES are more likely affected across all groups. Though preexisting MS is present in an important proportion of MDS patients, it was not significantly associated with an increased risk of mortality or AML transformation after adjusting for confounders. Obesity was associated with higher mortality and linked to increased transformation to AML. Given recent data suggesting that statins

may improve survival and decrease AML transformation in MDS, future studies should investigate the potential association between other metabolic parameters and MDS outcomes.

Disclosures No relevant conflicts of interest to declare.

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Table 1. Components of Metabolic Syndrome in MDS Patients				
	All MDS (N=15,227)	Low Risk MDS (N=2,246)	Intermediate Risk MDS (N=11,098)	High risk MDS (N=1,883)
Hypertriglyceridemia	2,722 (47.8%)	1,024 (45.6%)	5,304 (47.8%)	949 (50.4%)
Low HDL cholesterol	76 (0.5%)	10 (0.5%)	57 (0.5%)	9 (0.5%)
High blood pressure	10,987 (72.2%)	1,610 (71.7%)	8,058 (72.6%)	1,319 (70.1%)
Dysglycemia	5,401 (35.5%)	773 (34.4%)	4,007 (36.1%)	621 (33.0%)
Overweight/obesity	697 (4.6%)	103 (4.6%)	489 (4.4%)	105 (5.6%)
Metabolic syndrome	3,402 (22.3%)	487 (21.7%)	2,496 (22.5%)	419 (22.3%)

Table 2: Cox Regression Models in MDS Patients with Metabolic Syndrome*						
	Overall Survival			AML transformation		
Characteristics	Hazard Ratio	95% CI	p-value	Hazard Ratio	95% CI	p-value
Metabolic Syndrome	1.02	0.98- 1.07	0.386	1.02	0.89- 1.17	0.780
Components of MS						
- Hypertriglyceridemia	0.98	0.94 - 1.01	0.208	1.09	0.97- 1.23	0.127
- Low HDL cholesterol	0.88	0.65- 1.18	0.388	1.25	0.59- 2.64	0.554
- High blood pressure	1.08	1.04- 1.13	<0.001	0.88	0.77- 0.99	0.042
- Dysglycemia	1.03	0.99- 1.08	0.088	0.91	0.81- 1.04	0.159
- Central Obesity	1.17	1.07- 1.28	<0.001	1.33	1.05- 1.69	0.017

*Model is adjusted for age, sex, race/ethnicity, rurality, marital status, SES, MDS histologic risk, transfusion dependence and MDS therapies (HMA, lenalidomide, ESA).

Figure 1