MDS-567

Real-World Analysis of a Large Electronic Medical Records Database of Patients With Higher-Risk Myelodysplastic Syndromes (HR-MDS): Treatment Profiles, Clinical Effectiveness, and Key Adverse Events

Scan for more information

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Key Findings

- This was a retrospective real-world study of patients (pts) with HR-MDS undergoing care in the United States; of the treatment groups evaluated, pts received hypomethylating agents (HMA) (≈60%), hematopoietic stem cell transplant (HSCT) (13%), supportive care (SC) (11%), and venetoclax (VEN) ± HMA (10%) (**Table 1**)
- The majority of pts in each treatment cohort in this database except for HSCT received care in the community setting (**Table 1**)
- Across HMA, VEN ± HMA, and HSCT, the percentage of patients with a baseline comorbidity of any kind in the database was observed to be higher than in the overall HR-MDS cohort (**Table 1**)
- Patients receiving HSCT had a median (95% confidence interval [CI]) overall survival (OS) of 21.4 (14.2-42.3) months; with HMA it was 10.2 (9.3-11.2) months, and with VEN ± HMA it was 8.7 (6.6-11.0) months (**Table 2**)
- Over 40% of pts transformed to acute myeloid leukemia (AML) during the follow-up period, with an estimated median time to AML transformation of 11.4 months (**Table 2**)
- The event-rate for anemia, a known symptom of MDS, was observed to be highest for patients receiving only SC, followed by VEN ± HMA, then by HMA, and was lowest in HSCT (**Table 3**)

Conclusions

Results from this study provide key insights into the clinical effectiveness of currently available therapies for HR-MDS in the real world

Investigation into intrinsic and extrinsic differences such as underlying pt characteristics and clinical risk profiles among pts receiving treatment require additional assessment to further understand factors that may be associated with prognosis

There is an urgency for more effective therapies with tolerable safety profiles to improve prognosis of pts diagnosed with HR-MDS

References: 1. Jabbour EJ, et al. *Cancer.* 2015;121(6):876-882. **2.** Prébet T, et al. *J Clin Oncol.* 2011;29(24):3322-3327. **3.** Jabbour E, et al. *Cancer.* 2010;116(16):3830-3834.

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Introduction

- Pts with HR-MDS are commonly >70 years at initial diagnosis, present with comorbidities, and have poor performance status; they often experience suboptimal outcomes with currently available therapies[1-3]
- Characterizing the current care of HR-MDS is necessary to define the context for advancing care and will provide the baseline for further assessment of novel interventions' impacts on pt outcomes

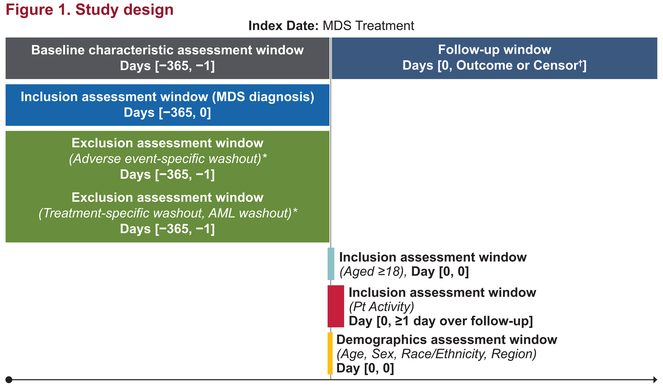
Objective

- To assess real-world treatment profiles, survival, and adverse events in pts newly diagnosed with MDS who initiate therapy in the United States

Methods

- A descriptive, retrospective cohort study of pts with HR-MDS from ConcertAI's RWD360 database consisting of pts treated in community and academic oncology practices in the US

Figure 1. Study design



Study Time Period: *01/01/2010 - 10/21/2022*

*Washouts applied to adverse event of interest per analysis. †Censoring criteria is based on outcome of interest.

- Identification of **pts with HR-MDS**
  - Based on Revised International Prognostic Scoring System score >3.0 using labs closest to index date (tests spanned from 60 days prior to and 365 days after index date)
  - Cytogenetic profile not available in RWD360 database; imputation method implemented by assigning a score of 1 (ie, cytogenetic profile = "good") to every pt (details on methodology available upon request)
- A total of 2028 pts aged ≥18 years were indexed into **treatment-based cohorts**:
  - **HMA:** Hypomethylating agents as monotherapy
  - **VEN ± HMA:** Venetoclax ± HMAs
  - **HSCT:** Hematopoietic stem cell transplant
  - **SC:** Supportive care only
- Outcomes assessed over follow-up included OS, AML transformation, and adverse event rates

Results

Table 1. Demographic and clinical characteristics: HR-MDS

Characteristic	HR-MDS	Index treatment (N = 763)			
	N = 2028	HMA n = 481	VEN ± HMA n = 85	HSCT n = 105	SC n = 92
Median (IQR) age, y	70 (62-77)	72 (64-78)	69 (60-75)	60 (52-66)	80 (72-83)
Male, %	59.1	58.4	54.1	59.0	67.4
Race, %					
White	72.9	77.3	77.6	62.9	70.7
African American	9.7	9.4	8.2	4.8	12.0
Asian	2.0	1.9	4.7	1.9	2.2
Other* or unknown	15.4	11.4	9.5	30.4	15.1
Setting, %					
Academic	53.4	33.5	44.7	83.8	23.9
Community	46.6	66.5	55.3	16.2	76.1
Comorbidities,† %					
Cardiac events (CAD, CHF, MI)	8.1	9.8	12.9	8.6	17.4
Coagulopathy	35.5	61.5	47.1	66.7	51.1
Diabetes mellitus, type II	6.7	10.0	15.3	12.4	12.0
Hypertension	10.4	18.1	16.5	12.4	16.3
Infection	8.8	9.8	10.6	21.9	14.1
Pulmonary disorder	4.7	7.7	9.4	6.7	3.3

Results shown for treatment cohorts with n>50 pts. *Includes Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and others not specified. †Conditions with n>90 in HR-MDS cohort. CAD, coronary artery disease; CHF, congestive heart failure; IQR, interquartile range; MI, myocardial infarction.

Table 2. Time-to-event outcomes among HR-MDS

Outcome	HR-MDS*	Index treatment† (N = 763)			
	N = 2028	HMA# n = 481	VEN ± HMA n = 85	HSCT n = 105	SC n = 92
OS (months) - censoring on end-of-study period or end-of-user data					
Median follow-up time [IQR]	8.5 [3.5-15.6]	7.7 [3.5-12.2]	6.7 [3.0-10.1]	13.4 [6.1-34.7]	4.5 [1.8-10.6]
% of pts who died	75	64	72	54	73
Median time to death among pts who died [IQR]	7.1 [2.8-12.3]	7.4 [3.4-11.8]	5.0 [2.9-10.2]	9.3 [4.3-14.7]	3.5 [1.6-9.4]
Median survival (95% CI)	9.7 (9.3-10.3)	10.2 (9.3-11.2)	8.7 (6.6-11.0)	21.4 (14.2-42.3)	4.7 (3.8-10.1)
12-month survival, % (range)	41 (39-44)	41 (36-46)	29 (20-43)	65 (56-75)	29 (21-42)
Time to AML transformation (months) - censoring on death, end-of-study period, or end-of-user data					
% of pts who transformed to AML	44	30	47	30	9
Median time to AML transformation among pts who transformed [IQR]	1.7 [0.1-6.1]	5.2 [1.7-9.3]	1.5 [0.3-4.7]	3.8 [2.5-9.5]	2.3 [1.2-4.4]
Median time to AML transformation (95% CI)	11.4 (9.9-13.2)	25.2 (14.3-NR)	7.5 (4.7-NR)	NR	NR

*Follow-up period starts when pts were first diagnosed with MDS. †Follow-up period starts from the initiation of the index treatment. #For the HMA-based cohort, pts would be censored, in addition to the criteria specified in each respective outcome, on the initiation of VEN. CI, confidence interval; NR, not reached.

Table 3. Adverse events observed during the follow-up period: HR-MDS

Adverse event	HR-MDS	Index treatment (N = 763)			
Event rate per 100 PYs (95% CI)*	N = 2028	HMA n = 481	VEN ± HMA n = 85	HSCT n = 105	SC n = 92
Anemia (Hb < 9 g/dL)	628.6 (587.3-670.0)	619.8 (481.4-758.2)	1587.0 (832.6-2341.3)	278.8 (120.4-549.3)	73,000.0 (31,697.1-114,302.9)
Anemia (Hb < 13.5 g/dL)	1235.2 (1147.6-1322.8)	960.9 (659.3-1262.4)	1505.2 (552.4-3276.1)	1076.7 (349.6-2512.7)	73,000.0 (26,789.7-158,890.3)
Cytopenia	1382.6 (1284.5-1480.8)	1570.9 (1042.9-2098.9)	1450.3 (532.3-3156.8)	1468.4 (590.4-3025.5)	73,000.0 (26,789.7-158,890.3)
Thrombocytopenia	624.2 (581.2-667.1)	516.9 (377.7-656.1)	1476.4 (675.1-2802.7)	1314.0 (600.8-2494.4)	243.1 (105.6-380.7)
Neutropenia	372.8 (347.3-398.3)	534.4 (431.7-637.1)	374.2 (142.3-606.1)	779.6 (318.9-1240.3)	151.1 (79.3-222.9)
Infection	42.1 (38.1-46.1)	44.9 (34.7-55.1)	102.4 (50.6-154.1)	139.1 (97.0-181.2)	30.0 (14.8-45.2)
Hemorrhage/bleeding	22.7 (20.0-25.4)	21.8 (14.9-28.8)	57.7 (26.4-109.5)	22.9 (10.4-35.3)	23.1 (10.0-36.2)
Cardiac arrhythmia	21.5 (18.9-24.2)	21.3 (14.6-28.0)	46.6 (18.8-96.1)	30.7 (16.1-45.3)	14.8 (6.4-29.2)
Cardiac failure	10.7 (8.9-12.5)	8.8 (4.6-13.0)	22.6 (6.2-58.0)	3.1 (0.4-11.4)	21.6 (8.8-34.3)
Gastrointestinal bleeding	8.5 (6.9-10.0)	8.4 (4.3-12.5)	17.0 (3.5-49.8)	6.0 (1.6-15.3)	9.0 (3.3-19.7)

*Adverse events with >5 events per 100 PYs in the HR-MDS cohort shown. Hb, hemoglobin; PY, patient-years.

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