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POSTER ABSTRACTS

906.OUTCOMES RESEARCH-MYELOID MALIGNANCIES

Durable Transfusion Independence in Lower-Risk Myelodysplastic Syndrome (LR-MDS) Is Associated with Better Survival: A Population Level Analysis Based on a Large US Health Insurance Claims Database

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BACKGROUND Red blood cell (RBC) transfusions are commonly used to treat patients with LR-MDS and anemia. RBC transfusion dependence (TD) is an impairment on patients' quality of life and associated with worsened survival (Lemos et al. *Sci Rep*. 2021). The few approved therapeutic options for LR-MDS have limited efficacy and durability. In this study, the baseline RBC-TD before first-line (1L) and second-line (2L) of therapy, durability of transfusion independence (TI), and associated survival among patients with LR-MDS treated with current standard-of-care therapies were assessed in a large US health insurance claims database.

METHODS Optum Clinformatics ®, a large single-payer database of administrative health claims for members of large commercial and Medicare Advantage health plans, includes approximately 17-19 million annual covered lives, for a total of >76 million unique lives over a 9-year period. Patients with LR-MDS were identified through 5 relevant International Classification of Diseases, Tenth Revision (ICD-10) diagnosis codes (D46.0, D46.1, D46.9, D46.A, and D46.B) between Oct 2015 and Jun 2022 and were required to have no MDS/acute myeloid leukemia (AML) diagnosis and no use of higher-risk MDS or AML medication before their respective index diagnosis dates. As revised International Prognostic Scoring System or other risk score classification information was not available in the database, ICD-10 diagnosis codes were used as a proxy for the identification of LR-MDS; these codes have been used previously in published studies (Zeidan et al. *Leuk Lymphoma*. 2019). Lines of treatment were determined based on claims for MDS treatments contained in the database: erythropoietin stimulating agents (ESAs; darbepoetin, epoetin alfa), hypomethylating agents (HMAs; azacitidine, decitabine, decitabine-cedazuridine), lenalidomide, luspatercept, eltrombopag, and cyclosporine. Outcomes of interest included transfusion burden (RBC units [U] in 8 weeks), proportion of patients who were transfusion independent before and after different lines of treatment, time to 8- and 16-week continuous TI, Kaplan-Meier analysis of real-world progression-free survival (starting a next line of treatment, progression to higher-risk MDS or AML, and death were considered events), and overall survival.

RESULTS The analysis included 5662 patients with LR-MDS (median age, 79 years; 57% male; 76% non-Hispanic White, primarily covered by Medicare Advantage) who received ≥1 line of treatment. Overall, 66% and 17% of patients received frontline monotherapy with ESAs and HMAs, respectively. In the 16 weeks before 1L treatment initiation, 35% of patients received ≥1 RBC transfusion. During 1L treatment, 45% of patients received ≥1 RBC transfusion, of whom 49% received >3 U and 24% received >6 U during any 8-week period. 2L treatment consisted of ESA monotherapy (40%), HMA monotherapy (21%), luspatercept (9%), or a combination thereof (19%). In the 16 weeks before 2L treatment initiation, 49% of patients received ≥1 RBC transfusion, and 55% received transfusions during 2L treatment (Table). Among patients receiving ≥1 transfusion during 2L treatment, 61% and 31% had >3 and >6 U/8 weeks, respectively. Transfusion burden was greater for patients with ring sideroblast-positive disease and increased with subsequent lines of therapy. Among 612 patients who received ≥1 transfusion in the 16-week period before 2L, 33% achieved 16-week TI with subsequent therapies. Median real-world progression-free survival from start of 2L was 20.0 months in patients who achieved 16-week TI and 4.1 months in patients who did not ($P <$

.0001). The median overall survival from start of 2L was 23.4 months overall, and 37.9 months vs 9.3 months among responders becoming RBC-TI vs nonresponders, respectively ($P < .0001$; Figure).

CONCLUSIONS Among patients with LR-MDS, 35% and 49% were RBC-TD before 1L and 2L of therapy, respectively. Achievement of TI was associated with improved survival, suggesting that RBC-TD is a modifiable predictor of clinical outcomes in LR-MDS. Despite the currently available therapies, RBC-TD after any line of therapy is associated with poorer outcomes. Our study results show that novel therapies that provide durable TI are expected to yield decreased progression and improved survival.

Disclosures Komrokji: *Rigel, Taiho, DSI:* Honoraria, Membership on an entity's Board of Directors or advisory committees; *Novartis:* Membership on an entity's Board of Directors or advisory committees; *BMS:* Honoraria, Membership on an entity's Board of Directors or advisory committees, Research Funding; *AbbVie, CTI biopharma, Jazz, Pharma Essentia, Servio:* Honoraria, Membership on an entity's Board of Directors or advisory committees, Speakers Bureau; *Geron:* Consultancy. **Sengupta:** *Geron Corporation:* Current Employment, Current equity holder in publicly-traded company. **Supina:** *Geron Corporation:* Current Employment, Current equity holder in publicly-traded company. **Navada:** *Geron Corporation:* Current Employment, Current equity holder in publicly-traded company. **Potluri:** *Putnam Inizio Advisory:* Current Employment; *Servier Pharmaceuticals:* Consultancy. **Tyagi:** *Geron:* Consultancy; *Putnam Inizio Advisory:* Current Employment. **Werwath:** *Putnam Inizio Advisory:* Current Employment; *Geron:* Consultancy. **Xie:** *Novartis:* Speakers Bureau; *Moffitt Cancer Center:* Current Employment. **Padron:** *Kura:* Research Funding; *Incyte:* Research Funding; *BMS:* Research Funding; *Gillead:* Membership on an entity's Board of Directors or advisory committees; *CTI:* Membership on an entity's Board of Directors or advisory committees; *Pharmaessentia:* Membership on an entity's Board of Directors or advisory committees; *Abbvie:* Membership on an entity's Board of Directors or advisory committees. **Sallman:** *AbbVie, Affimed Gmbh, Gilead, Incyte, Intellisphere, LLC, Molecular Partners AG, PGEN Therapeutics, Inc., Takeda, Zentalis; Advisory board for AvenCell, BlueBird Bio, BMS, Intellia, Jasper Therapeutics, Kite, Magenta Therapeutics, NKARTA, Novartis, Orbita:* Consultancy; *Aprea, Jazz:* Research Funding.

Table. Summary of RBC transfusions pretreatment and during lines of treatment.

	Overall				RS−			RS+			RS unspecified		
	16-Weeks before treatment (N = 5662)	1L (N = 5662)	16-Weeks before 2L treatment (N = 1245)	2L (N = 1245)	16-Weeks before treatment (N = 229)	1L (N = 229)	2L (N = 48)	16-Weeks before treatment (N = 307)	1L (N = 307)	2L (N = 85)	16-Weeks before treatment (N = 5126)	1L (N = 5126)	2L (N = 1112)
Duration, d													
Mean (SD)		239 (304)		234 (272)		259 (357)	248 (279)		307 (358)	306 (290)		234 (297)	227 (270)
Median (IQR)		123 (51-298)		134 (59-295)		118 (57-339)	156 (77-310)		165 (71-435)	210 (118-455)		122 (51-290)	128 (58-291)
≥1 RBC transfusion, n (%)													
Yes	2000 (35.3)	2563 (45.3)	612 (49.2)	682 (54.8)	56 (24.5)	82 (35.8)	17 (35.4)	78 (25.4)	117 (38.1)	56 (65.9)	1866 (36.4)	2364 (46.1)	609 (54.8)
No	3662 (64.7)	3099 (54.7)	633 (50.8)	563 (45.2)	173 (75.5)	147 (64.2)	31 (64.6)	229 (74.6)	190 (61.9)	29 (34.1)	3260 (63.6)	2762 (53.9)	503 (45.2)
RBC transfusions, n (%)[a]													
1-3 U	1286 (64.3)	1303 (50.8)	273 (44.6)	265 (38.9)	40 (71.4)	52 (63.4)	10 (58.8)	52 (66.7)	61 (52.1)	20 (35.7)	1194 (64.0)	1190 (50.3)	235 (38.6)
4-6 U	500 (25.0)	656 (25.6)	195 (31.9)	203 (29.8)	13 (23.2)	17 (20.7)	4 (23.5)	20 (25.6)	37 (31.6)	22 (39.3)	467 (25.0)	602 (25.5)	177 (29.1)
>6 U	214 (10.7)	604 (23.6)	144 (23.5)	214 (31.4)	3 (5.4)	13 (15.9)	3 (17.6)	6 (7.7)	19 (16.2)	14 (25.0)	205 (11.0)	572 (24.2)	197 (32.3)

IQR, interquartile range; RBC, red blood cell; RS, ring sideroblast.
[a]Units were the maximum units of any rolling 8-week period in the evaluation period. If a patient was followed for <8 weeks, their total number of units was used.

Figure. Overall survival from start of second-line treatment, stratified by 16-week TI status.

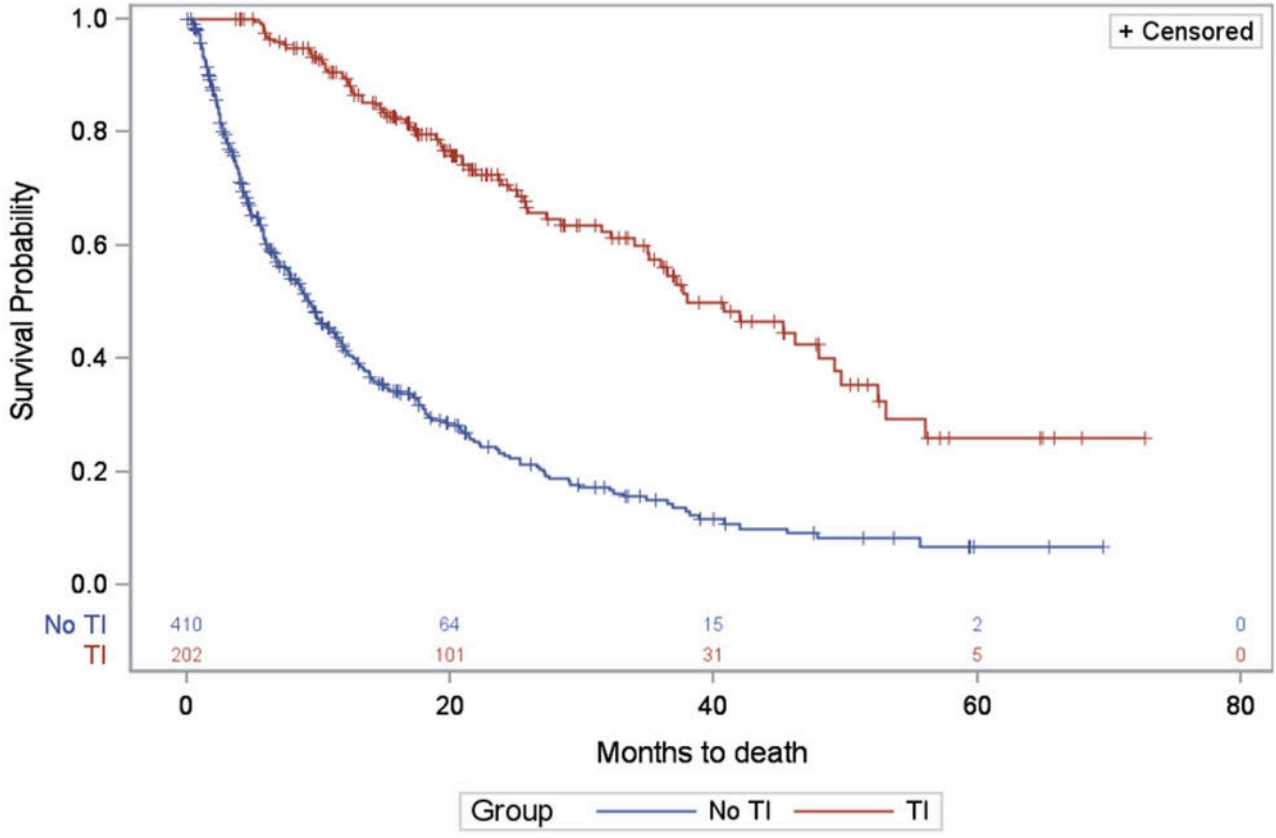

Figure 1

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