Real-World Treatment Patterns and Patient Characteristics Among Patients with Acute Myeloid Leukemia (AML) in the USA, UK, and France

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INTRODUCTION

- Acute myeloid leukemia (AML) is a rare malignancy comprised of a heterogenous group of aggressive hematopoietic neoplasms with a poor prognosis: in the USA and Europe, 5-year survival rates range from 15-32%[1-3]
- The standard of care for fit patients with newly diagnosed AML is intensive chemotherapy (IC) as first-line (1L) treatment, which is usually cytarabine plus an anthracycline and sometimes the addition of a third, targeted agent for a particular mutation[4]
- For unfit patients (older, with comorbidities or adverse cytogenetic prognostic factors), 1L IC may not be appropriate[4]
- The use of IC and non-IC therapies have been assessed in clinical trials, but these can under-represent some patient subgroups, e.g., patients with certain mutations or comorbidities
- Real-world data can provide additional insights into the management of AML, as they have fewer exclusion criteria and are more representative of the whole AML population
- REAL-IDH is an international network generating evidence on AML in the real-world setting, to better understand the management of AML in patients with or without mutations in the gene encoding isocitrate dehydrogenase 1 (*IDH1*)
- Here we present information on general clinical characteristics in the overall AML population, on the use of IC, and on the frequency of the mutant *IDH1* (m*IDH1)* in the USA, France and UK

AIMS

- To describe patient characteristics and use of IC among a real-world cohort of adult patients with AML in the USA, UK, and France, in the overall population and in patients with m*IDH1*

METHODS

- This retrospective, longitudinal, observational study was conducted using databases from the USA (Cancer Outcomes Tracking and Analysis [COTA]), UK (Cancer Analysis System [CAS]), and France (DATAML registry)
- Data were collected for patients with newly diagnosed AML between 2013-2020 (USA and UK) and 2017-2021 (France)
- Protocols were country specific, hence the data reported varies between countries, however, commonalities included inclusion of patients ≥18 years old with newly diagnosed AML
- Outcome measures reported here include baseline characteristics and IC use among patients receiving first-line IC

RESULTS

- Baseline characteristics for the three databases (USA, France and the UK) in the overall AML population are shown in Table 1, and were generally similar for all three countries, including the proportion of patients receiving 1L IC

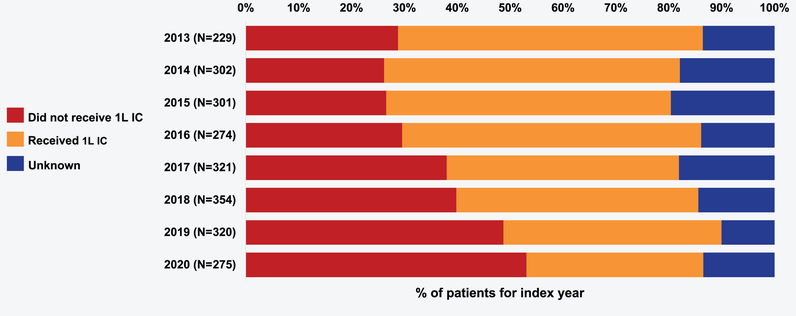
Table 1: Baseline characteristics in the overall AML population

		COTA (USA) N=2376	DATAML (France) N=1797	COSD (UK) N=14,950
Age at diagnosis, years	Mean (SD)	63.1 (15.7)	68.5 (14.6)	66.3 (15.4)
Sex, n (%)	Male	1266 (53.3)	996 (55.4)	8780 (58.7)
***IDH1* mutation, n (%)**		160 (6.7)	153† (10.5)	25† (9.6)
ECOG score at diagnosis n (%)*	0 1	408 (36.3) 506 (45.0)	354 (19.7) 799 (44.5)	2375 (48.8) 1682 (34.5)
Bone marrow blast % (closest to diagnosis)	Mean (SD)	47.0 (26.91)	49.1 (24.99)	N/A
1L IC, n (%)		1143 (48.1)	836 (46.5)	5461 (36.5)
Cytogenetic status, n (%)‡	Favorable Intermediate Unfavorable	970 (40.8) 1244 (52.4) 1149 (48.4)	90 (5.0) 1015 (56.5) 605 (33.7)	N/A
ELN 2017 prognosis, n (%)	Favorable Intermediate Unfavorable	N/A	342 (19.0) 347 (19.3) 782 (43.5)	N/A

* Percentages calculated based on known ECOG score; missing ECOG data were omitted. † France: of a tested population of 1459 patients; UK: of a tested population of 261. ‡ MRC citeria 2010
1L, first line; AML, acute myeloid leukemia; ECOG, Eastern Cooperative Oncology Group; IC, intensive chemotherapy; *IDH1*, isocitrate dehydrogenase 1; N/A, not available; SD, standard deviation.

- There was an increase in the proportion of patients receiving non-IC from 2017 onwards in the USA (Figure 1)
- As expected in the IC population:
  - Median age was younger (58, 63, and 59 years) than in the group receiving 1L non-IC (73, 77, and 74 years) in the USA, France and UK, respectively
  - More patients had an ECOG score of 0 (USA: 40.8%, France: 28.6%; UK 61.6%) than patients receiving 1L non-IC (32.0%, 16.8% and 35.8%, respectively)

Figure 1: First-line treatment in the USA from 2013-2020



- The most frequently used test for *mIDH1* in France and the USA was next-generation sequencing
- In 2021, 85% of AML patients in the USA and 93% in France were tested for the *IDH1* R132 mutation at diagnosis compared with 65% in the USA and 66% in France in 2017
- Median turnaround time (time from test, to test result) in the USA was 26 days (mean [SD] 186 [328] days]) for a positive test and 19 days (mean [SD] 105 [235] days) for a negative test
  - In the USA, the median turnaround time has decreased over time: 2013 (423 and 98 days); 2017 (11 and 21 days); and 2020 (12 and 14 days), for positive and negative tests, respectively
- In the IC population, of those tested, *mIDH1* was detected in 84/780 (10.8%), 70/749 (9.3%) and 15/162 (9.3%) patients in France, USA and UK, respectively
- In the non-IC population, 51/431 (11.8%), 53/501 (10.6%) and <5/60 (<8.3%) had *mIDH1*, in France, USA and UK, respectively
- In all three countries, median age, proportion of male:female, ECOG performance status, and percentage bone marrow blasts were broadly similar for m*IDH1* patients (Table 2) and the overall AML population (Table 1)

Table 2: Baseline characteristics of patients with m*IDH1* AML

		COTA (USA) N=160	DATAML (France) N=153	COSD (UK) N=25
Age at diagnosis, years	Mean (SD)	63.5 (13.8)	67.6 (13.9)	67.3 (13.4)
Sex, n (%)	Male	74 (46.3)	75 (49.0)	14 (56.0)
ECOG score at diagnosis n (%)*	0 1	30 (33.3) 47 (52.2)	37 (24.2) 71 (46.4)	6 (24.0) <5
Bone marrow blast % (closest to diagnosis)	Mean (SD)	50.4 (28.8)	55.1 (27.01)	N/A
1L IC, n (%)		70 (43.8)	84 (54.9)†	15 (60.0)

* Percentages calculated based on known ECOG score; missing ECOG data were omitted. † Calculated percentages (not presented in original data).
1L, first line; ECOG, Eastern Cooperative Oncology Group; IC, intensive chemotherapy; SD, standard deviation.

CONCLUSIONS

- **AML patients who received IC were younger and had lower ECOG scores than non-IC recipients**
- **Increase in use of non-IC in the USA may be due to FDA approval of novel therapies indicated for IC ineligible patients**
- **Proportion of patients tested for *IDH1* R132 mutation increased over time, and turnaround time of tests decreased over time**
- **No differences in clinical presentation between patients in the overall population compared to those with m*IDH1***

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