Real-world healthcare resource utilization in patients with acute myeloid leukemia in 12 countries across Western Europe

M. Kabra,[1] L. Margotto,[2] F. Manuguid[3]

[1]Otsuka Pharmaceutical Europe Ltd, Wexham, UK; [2]IQVIA, Milan, Italy; [3]IQVIA, London, UK

BACKGROUND

- Acute myeloid leukemia (AML) is the most common acute leukemia in adults. While recent advances in the treatment of AML have significantly improved outcomes in younger patients, the prognosis for elderly patients remains poor.[1]
- Although AML is associated with a high disease burden,[2] relatively little is known about healthcare resource utilization in Europe.
- The aim of this study was to gain a better understanding of real-world healthcare resource utilization in patients with treatment-naïve (TN), relapsed or refractory (RR) AML across Europe.

METHODS

- Cross-sectional, web-based survey of AML-treating healthcare professionals (HCPs) in 12 European countries (**Table 1**) conducted between June and August 2018. Data were also collected retrospectively, and reported for patients with TN (eligible and ineligible for standard intensive induction therapy) or RR AML.
- Physicians were asked to provide information on the last 2–4 patients with AML seen within the 6 months immediately prior to the study, irrespective of whether the patient had received any treatment for AML or if they had TN or RR AML.
- Data were collected on the following variables:
  - Physician's duration of practice, specialty, type of setting, number of patients with AML seen or treated, treatment guidelines used.
  - Demographics and disease characteristics of patients with AML.
  - Treatment patterns and healthcare resource utilization.
- Data were analyzed by descriptive statistics.

RESULTS

Profile of participating physicians

- A total of 320 physicians provided information on 1,280 TN and RR AML patients. Most physicians were hematologists or onco-hematologists working in public hospitals (**Table 1**).
- Around half of all patients with AML seen and treated in the 6-month period prior to the study were TN/newly diagnosed; approximately 30% of patients had relapsed AML and around 20% had refractory AML.
  - Around 40% of TN or newly diagnosed patients were ineligible for standard induction chemotherapy.
  - Germany, Austria and Switzerland had the highest proportion of ineligible patients.

Patient demographics and clinical characteristics

- On average, patients in the study sample had been diagnosed with AML for 5 months and presented with bone marrow blasts >40%. A higher proportion of ineligible patients had Eastern Cooperative Oncology Group (ECOG) performance status ≥2 at diagnosis versus eligible patients (**Table 2**).
- Patients in Germany, Belgium and Switzerland were older than those in other countries.
- The most common comorbidities among patients in the study sample were hypertension, anemia and hyperlipidemia. The percentage of patients with comorbidities was higher among patients ineligible for standard induction therapy (**Table 2**).

Healthcare resource use

- In the 6 months prior to the study, patients with AML in the overall sample averaged 3.1 general practitioner (GP) visits, 4.6 nurse/physiotherapist visits, 6.2 specialist visits, 1.2 emergency room (ER) visits, 20.8 days of hospitalization and 5.3 uses of healthcare-related transport (**Table 3**).
- Patients in Spain, Switzerland, the Netherlands, Nordic countries and the UK had visited specialists more often for AML treatment, compared with patients in other countries. Patients in Austria had more days of hospitalization, while patients in Italy had fewer days of hospitalization versus other countries.
- Patients ineligible for intensive induction therapy (~40% of the sample) had a higher number of GP visits (4.1 vs 2.4) and more uses of healthcare-related transport (6.9 vs 4.5), but less hospitalization (11.4 vs 27.5 days), versus eligible patients (**Table 3**).
- TN patients had on average 3.8, 4.0, 3.4 and 1.4 GP, nurse/physiotherapist, specialist and ER visits, respectively, 8.7 hospitalization days and 3.5 uses of healthcare-related transport (**Table 4**).
- Among patients on first-line treatment, those ineligible for intensive induction therapy versus eligible patients had a higher number of GP (3.3 vs 2.1), nurse/physiotherapist (3.8 vs 3.0) and ER (1.2 vs 0.8) visits, more uses of healthcare-related transport (5.7 vs 3.1) and less hospitalization (11.5 vs 22.3 days).
- First-line eligible patients in general required fewer healthcare resources than ineligible patients.
  - First-line eligible patients in the UK and non-EU5 countries required more specialist visits, while those in Germany, Spain and non-EU5 countries required more days of hospitalization (data not shown).
  - First-line ineligible patients in France required fewer specialist visits than their counterparts in Spain and non-EU5 countries, who also required more days of hospitalization (data not shown).
- Patients with prior myelodysplastic syndrome (MDS) diagnosis in Germany and non-EU5 countries required more specialist visits, while those in Italy, Spain and non-EU5 countries required more days of hospitalization.

Supportive care use

- Overall, the most frequently received types of supportive care were red blood cell transfusions (74%), antibiotics (65%), antiemetics (62%) and platelet transfusions (61%) (**Figure 1**).
- Patients receiving 7+3 and high-dose cytarabine (HiDAC) regimens had a higher use of supportive care.
- Patients receiving non-intensive induction therapy required less supportive care, with the exception of red blood cell transfusions.
- Among TN patients, those ineligible for standard intensive induction therapy required slightly fewer supportive care resources compared with eligible patients (**Figure 1**).
- A similar pattern of supportive care use was observed across countries.

Table 1. Characteristics of physicians participating in the study

Country/ region	Physicians (N)	Specialty: Oncologist (%)	Specialty: Hematologist (%)	Specialty: Hemato-oncologist (%)	Setting: Public hospital (%)	Setting: Private hospital/clinic (%)	Setting: University hospital (%)	Patients seen† (N)
Austria*	15	–	–	93	93	7	53	60
Belgium	16	13	56	31	88	13	44	64
France	51	4	51	45	98	2	67	204
Germany*	51	2	16	69	94	6	44	204
Italy	51	6	57	37	96	4	55	204
Netherlands	8	–	88	13	100	–	25	32
Nordics**	18	11	78	11	100	–	33	72
Spain	50	4	82	14	100	–	84	200
Switzerland	10	10	50	40	100	–	50	40
UK	50	8	60	32	100	–	70	200

*Other specialties included internal medicine specialized in hematology/oncology (Germany, 14%; Austria, 7%). **Finland, Norway, Sweden.
†Number of patients included in the study sample seen during the 6 months prior to the study.

Table 2. Characteristics of patients with AML in the study sample

	Total N=1280*	Eligible for standard induction therapy (n=661)	Ineligible for standard induction therapy (n=467)	Relapsed after primary remission induction (n=15)	Refractory after primary remission induction (n=24)
Male (%)	58	62	54	20	58
Age (%)					
<60 years	36	59	6	33	63
60–75 years	29	31	27	67	29
>75 years	35	9	67	0	8
Comorbidities (%)**					
Hypertension	41	27	60	33	21
Anemia	24	16	33	33	17
Hyperlipidemia	16	11	24	7	8
Chronic pulmonary disease	13	5	22	20	–
Anxiety/depression	12	9	16	7	13
Diabetes without end organ damage	11	6	20	–	8
Congestive heart failure	10	2	19	7	–
None	29	48	7	33	54
Time since AML diagnosis (months)	4.7	5.1	4.6	6.3	3.8
Bone marrow blasts at diagnosis (%)					
<40%	33	25	47	20	13
40–70%	48	53	40	27	52
>70%	19	23	13	53	35
ECOG status at diagnosis (%)					
0	25	37	8	27	42
1	45	49	42	33	50
2	22	12	36	40	8
3	6	2	9	0	0
4	2	0	4	0	0

*Total includes 113 patients who were receiving best supportive care or were treatment-naïve. **In ≥10% in the total population.
AML, acute myeloid leukemia; ECOG, Eastern Cooperative Oncology Group.

Table 3. Healthcare resource use in the overall AML population and by country*

	Total** (N=1280)	Eligible for standard induction therapy (n=661)	Ineligible for standard induction therapy (n=467)	Relapsed after primary remission induction (n=15)	Refractory after primary remission induction (n=24)	AT (n=60)	BE (n=64)	CH (n=10)	DE (n=204)	ES (n=200)	FR (n=204)	IT (n=204)	NL (n=32)	Nordics† (n=72)	UK (n=200)
Average number of visits: GP/family physician	3.1	2.4	4.1	2.9	2.2	6.9	2.7	3.1	3.8	2.9	2.9	3.3	2.4	1.5	2.2
Average number of visits: nurse/physiotherapist	4.6	4.7	4.6	11.7	4.2	6.0	3.0	5.7	2.8	3.8	5.7	2.6	0.2	15.3	4.7
Average number of visits: specialist	6.2	6.4	6.2	10.6	8.5	6.5	5.5	9.7	5.7	6.8	4.2	4.7	7.9	8.4	7.9
Average number of emergency room visits	1.2	1.0	1.3	1.8	1.5	2.0	0.9	0.7	0.7	1.6	0.8	1.1	1.1	1.4	1.4
Average number of total hospitalization days	20.8	27.5	11.4	53.9	61.6	34.7	31.5	23.1	17.7	24.1	17.9	13.0	17.8	32.1	19.7
Average number of times using transportation for healthcare purposes	1.7	1.3	2.2	0.8	2.9	7.4	0.6	0.2	0.9	2.6	2.5	0.5	0.8	2.4	1.0
	3.5	3.0	4.6	1.9	3.9	9.8	0.7	2.6	6.9	1.6	4.4	0.2	8.0	7.3	1.3
	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.1	0.1	0.0	0.0	0.4

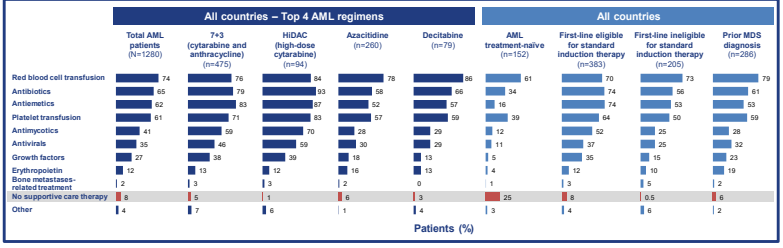
*In the 6 months prior to the study. †Finland, Norway, Sweden. AML, acute myeloid leukemia.

Table 4. Healthcare resource use in treatment-naïve patients with AML in the overall population and by country*

	AML treatment-naïve (n=162)	First-line eligible for standard induction therapy (n=383)	First-line ineligible for standard induction therapy (n=205)	Prior MDS diagnosis (n=286)	First-line ineligible for standard induction therapy: DE (n=35)	ES (n=38)	FR (n=31)	IT (n=38)	UK (n=27)	Non-EU5 (n=36)	Prior MDS diagnosis: DE (n=76)	ES (n=46)	FR (n=37)	IT (n=35)	UK (n=32)	Non-EU5 (n=60)
Average number of visits: GP/family physician	3.8	2.1	3.3	4.5	3.9	3.5	2.9	3.4	2.3	3.6	4.6	3.8	3.5	5.4	3.4	5.6
Average number of visits: nurse/physiotherapist	4.0	3.0	3.8	5.3	1.2	3.7	10.6	2.6	2.3	3.3	5.4	3.7	6.5	3.5	2.8	7.9
Average number of visits: specialist	3.4	5.5	5.6	7.0	5.5	7.6	3.6	4.6	3.2	8.2	7.6	6.3	5.6	5.0	6.7	9.2
Average number of emergency room visits	1.4	0.8	1.2	1.4	0.8	1.8	0.4	1.1	1.7	1.3	0.7	1.8	1.4	1.7	1.5	1.9
Average number of total hospitalization days	8.7	22.3	11.5	12.3	8.6	12.4	8.6	8.3	7.9	21.8	8.5	13.3	12.1	16.3	8.4	16.2
Average number of times using transportation for healthcare purposes	1.9	1.1	1.6	2.7	1.1	3.4	2.5	0.4	1.1	1.2	1.1	3.4	4.3	0.9	2.0	4.4
	1.4	1.8	4.0	5.5	7.7	1.2	4.2	0.3	2.6	8.1	8.8	1.7	8.9	0.1	2.2	7.0
	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.6	0.1	0.0	0.02	0.4	0.0	0.2	0.02

*In the 6 months prior to the study. AML, acute myeloid leukemia; MDS, myelodysplastic syndrome.

Figure 1. Supportive care use in patients with AML



AML, acute myeloid leukemia.

CONCLUSIONS

- Our analysis of real-world patients with TN or RR AML in Europe demonstrates significant healthcare use over a 6-month period.
- Patients ineligible for standard induction therapy had a higher use of some healthcare resources (notably specialist visits and days of hospitalization) and healthcare-related transport compared with eligible patients. Therapies that reduce the heavy AML treatment burden may decrease spend on healthcare resources and improve patient quality of life.

REFERENCES

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