Abstract ID 113037

Healthcare Resource Utilization in Adults Diagnosed with Acute Myeloid Leukemia (AML) in Helsinki and Uusimaa Hospital District

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INTRODUCTION

Acute myeloid leukemia (AML) is the most common form of acute leukemia occurring in adults. The incidence is age-dependent, rising markedly in patients aged ≥60 years. Across all age groups, the incidence of AML per 100 000 people (age-standardized) is higher in males (3.83) than in females (2.43) [1]. The median age at diagnosis is approx. 70 years [2].

The economic burden associated with AML is poorly defined and understudied both globally and in Finland. In a Swedish study, patients <60 years undergoing hematopoietic stem cell transplantation (SCT) had the highest costs, with 60% of the costs from hospitalizations [3]. Similar observations were made in a study from Southwest Finland, where most of the costs accumulated during induction and SCT phase, and inpatient visits accounted for 63-91 % of the monthly costs [4].

The objective of this study was to estimate health care resource utilization (HCRU) and costs in different disease stages of AML in Finland. It should be noted, that novel targeted therapies have been recently added to the standard treatment and here we evaluate the outcomes and economic impact prior to this point.

Disclosures

This study is sponsored by Novartis Finland Oy.

Acknowledgements: We would like to thank Bettina Mannerström, Ph.D from Medaffcon for her assistance in the preparation of this poster.

METHODS

Real world data of adult patients (≥18 years) diagnosed with AML (ICD−10 C92.0) and initiating induction treatment during 1.1.2016-30.6.2020 in the hospital district of Helsinki and Uusimaa (HUS) were included in the study. HCRU data were defined to include outpatient visits, inpatient stays, medical procedures, and laboratory measurements. Data were processed in the GDPR-compliant HUS data lake platform enabling data storage from electronical health records and medical data analysis.

The unit costs were extracted from the 2020 hospital price list. Costs related to surgical operations, imaging or medication were not included in the cost calculations. Costs are reported as average cost per patient and per month.

RESULTS

A total of 81 diagnosed patients (58% female) with the mean age of 53 years and median follow-up time of nearly 2 years were identified **(Table 1).** The most frequent comorbidities at diagnosis included hematological and infectious diseases (data not shown), reflecting the immunological changes and preconditions related to AML.

Table 1. Characteristics of patients with AML at the time of diagnosis.

Variable	Level	Overall
N		81
Age (mean)		53
Sex, N (%)	female	47 (58)
	male	34 (42)
Follow-up time (median)	days	708

Patients spent on average 106.8 days at the inpatient ward. The average per patient cost during the study follow-up was 170 808€, i.e., approximately 6 860€/month (per 28 days) per patient.

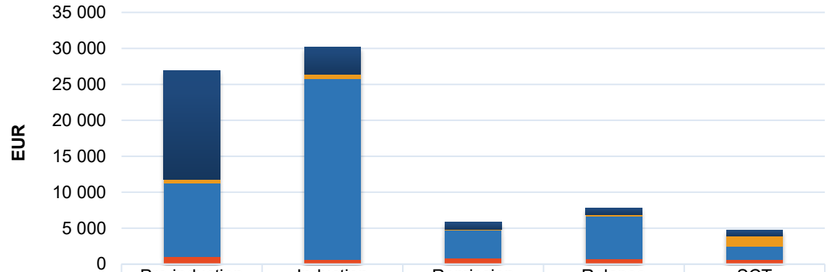

Figure 1. Patient days and mean cost per month (28 days) for each treatment phase or disease state and cost category. Lab test include pathology procedures.

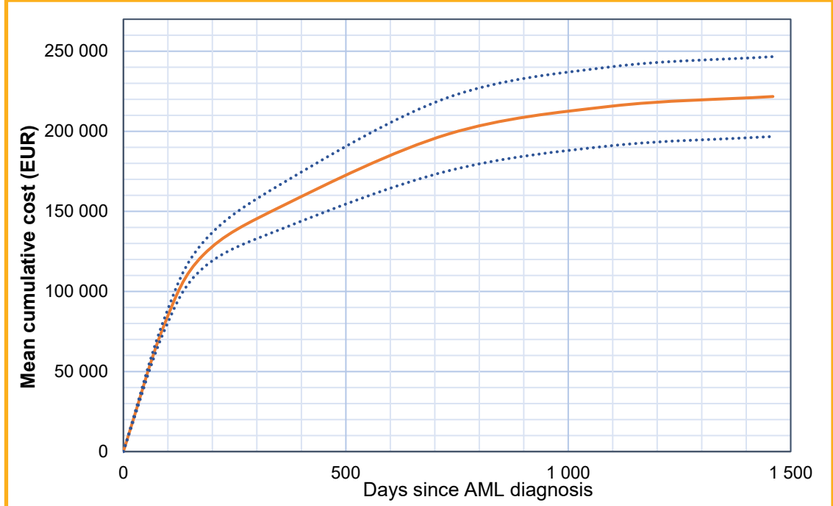

Figure 2. Cumulative mean lifetime costs estimate of AML treatment, accounting for zero costs after death. Dashed lines represent the 95% confidence intervals.

Although the pre-induction (the time between diagnosis and induction treatment initiation) as well as induction stages are short in AML patients, the cost accumulation rate (per 28 days) was highest in these two disease stages **(Figure 1)**.

During the first 3 month after diagnosis, hospital healthcare resources reached an average of 77 905€ (25 968€/month), at two years the mean cumulative costs increased to 198 254€ (4 186€/month), and at four years to 221 717€ (782€/month) **(Figure 2)**.

CONCLUSIONS

The early phases of AML treatment consume a substantial amount of public healthcare resources, after which the cost rate gradually decreases.

The estimated mean cumulative costs in HUS is expected to reflect the overall costs in Finland, as the treatment of AML patients follow national guidelines and is centralized into five University Hospitals.

References

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