Factors Associated with Treatment Among Older Adults Diagnosed with Chronic Lymphocytic Leukemia: An Analysis Using Medicare Claims Data

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INTRODUCTION: Chronic lymphocytic leukemia (CLL) is the most common type of leukemia in adults in the US. Sixty-seven percent of patients diagnosed with CLL are age 65 years or older. While new agents and treatment combinations have been approved for CLL and treatment guidelines take into consideration age, frailty, and comorbidity status, limited information exists on current prescribing patterns or the demographic and clinical characteristics of individuals receiving them. The objectives of this study were to: 1) characterize CLL treatment patterns and timing of treatment; 2) identify factors associated with the receipt of CLL treatment in the US Medicare population.

METHODS: The study sample included Medicare beneficiaries diagnosed with CLL from 2017 to 2019 using the Chronic Conditions Data Warehouse. Medicare beneficiaries were identified using billing diagnosis codes. Patients who were not treated for CLL during a continuous 6-month period (i.e., baseline period), continuously enrolled in Medicare Parts A, B, and D at baseline with no evidence of enrollment in Medicare Advantage, and age 65 or older at the index date were included. The index date was defined as the date of the first claim with a CLL diagnosis code during the cohort identification period (7/1/2017-6/30/2019). Individuals were followed from the index date until loss of eligibility, death, or end of the study period on 12/31/2019, whichever occurred first. We characterized CLL

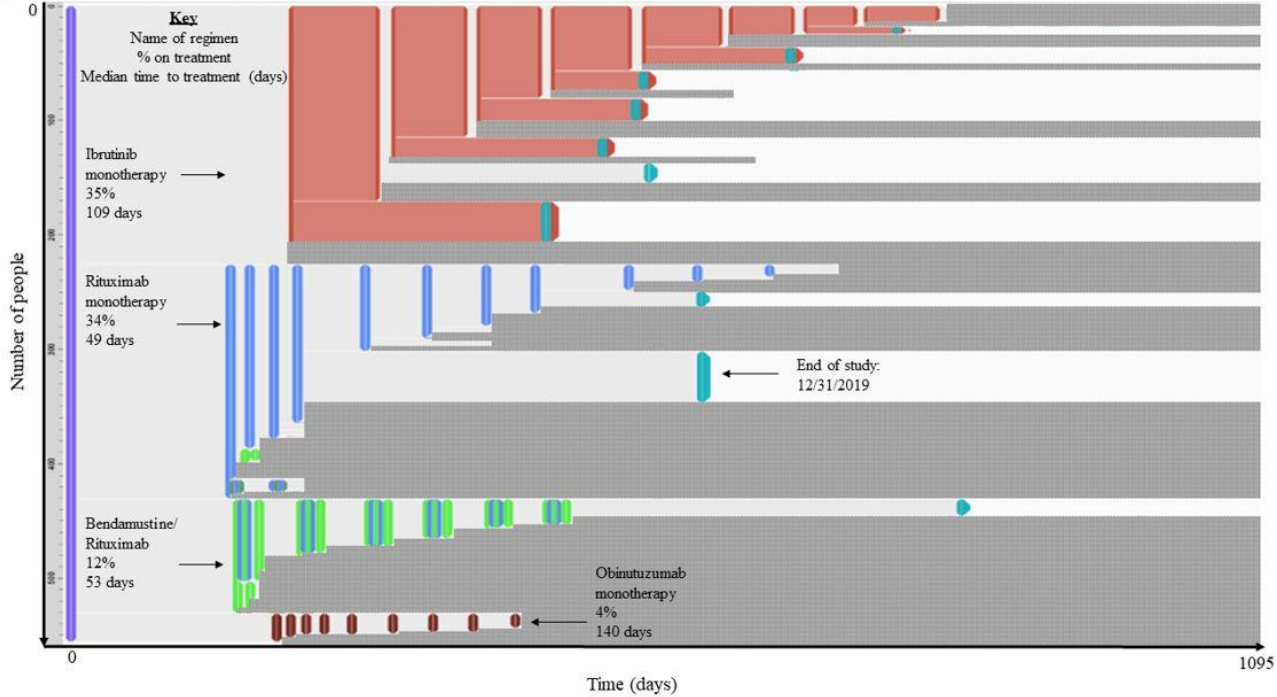
treatments using National Comprehensive Cancer Network guidelines and grouped individuals based on the first treatment received. The CLL treatments included: rituximab monotherapy, ibrutinib monotherapy, bendamustine/rituximab (BR), obinutuzumab, and other treatments. We reported the proportion of individuals who received the first course of treatment (COT), the top-ranked regimens within the first COT, and the median time to starting the first COT. Time-to-initiation was calculated as the time (in days) from the index date until the first evidence of treatment receipt. We utilized EventFlow visual analytics software to characterize longitudinal patterns of CLL treatments received from the index date (Day 0) until the end of follow-up. EventFlow facilitates exploratory, visual analyses of temporal event sequences using patient-level information about single events (e.g., infusion date), interval events (prescription start and end date), and the end-of-study indicator. We characterized the sample using the following baseline measures: age, race/ethnicity, gender, Charlson Comorbidity Index score, and use of preventive health services, among other measures. We identified factors associated with receipt of CLL treatment using a logistic regression model and reported the covariate-adjusted odds ratio (AOR). An AOR<1 indicates the comparison was negatively associated with receipt of CLL treatment.

RESULTS: After applying the inclusion/exclusion criteria, 3,440 CLL patients were identified. Sixteen percent (n=556) of individuals received CLL treatment and the median follow up time was 540 days. Overall, the mean (standard error) age was 77 (8); 49% male. Among the 556 treated patients, the distribution of first COT was 35% ibrutinib, 34% rituximab, 12% BR, 4% obinutuzumab, and 14% other treatment. The median (interquartile range, mean) time to receipt of CLL treatment was 61 (224, 166) days. The median time to receipt of ibrutinib, rituximab, BR, or obinutuzumab was 109, 49, 53, and 140 days, respectively. The EventFlow graphic (Figure 1) illustrates treatments received (prescriptions or chemotherapy administrations) post-index date and through the end of the study period. Less than half of the patients in the BR group completed six doses of BR. Compared to patients in the rituximab group, a larger proportion of patients in the ibrutinib and BR groups remained on the first COT over time. In the logistic regression model age (≥85 vs 65–74; AOR=0.69; 95% CI:0.53–0.91) and gender (male vs female; AOR=1.28; 95% CI: 1.06 – 1.54) were statically significant; no other statistically significant differences based on baseline measures were observed.

CONCLUSIONS: Among Medicare beneficiaries diagnosed with CLL, less than 2 out of 10 patients received CLL treatment. The most common treatments administered during this time period were ibrutinib or rituximab. Younger age and male gender were factors

associated with increased receipt of treatment.

Figure 1: EventFlow characterization of CLL treatment patterns in the US Medicare population



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