# Patient Preferences and Factors Affecting Patient Treatment Decisions for Chronic Lymphocytic Leukemia in Japan

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## CONCLUSIONS

- Results from this patient preference survey suggest that patients with CLL in Japan placed the greatest importance on the **impact of atrial fibrillation on QOL, followed by impact of diarrhea on QOL and PFS,** when considering CLL treatment decisions
- This study represents the first quantitative assessment of preferences among Japanese patients with CLL using a DCE approach
- Integrating patient perspectives into treatment planning can enhance shared decision-making, support personalized care, and potentially improve adherence to long-term therapy
- Future prospective studies assessing patient preferences for CLL treatment options in Japan are needed to better understand patient priorities and inform clinical practice for CLL management

## INTRODUCTION

- Bruton tyrosine kinase (BTK) inhibitors have transformed the treatment landscape for chronic lymphocytic leukemia (CLL), offering significant improvement in patient outcomes[1,2]
- Despite the widespread adoption of BTK inhibitors and their proven clinical benefits, data on the treatment preferences and priorities of patients with CLL in Asia, particularly in Japan, are limited
- Understanding patient preference is critical for optimizing clinical decision-making and tailoring treatment strategies for Japanese patients[3]
- To bridge this knowledge gap, discrete choice experiment (DCE) methodology, a widely used approach to assess patient preferences and quantify trade-offs between treatment options, was used to evaluate how patients with CLL prioritize treatment features and the trade-offs they are willing to make between efficacy, safety, and treatment mode of administration

## OBJECTIVE

- This quantitative study was conducted to assess patient preferences for treatment attributes associated with BTK inhibitors, providing insights into the priorities of patients with CLL in Japan and elucidating how these attributes guide their treatment decisions

## METHODS

### Data Source and Study Population

- An online survey applying DCE methodology was administered between April 29 and June 30, 2025, to Japanese adults (≥18 years of age) diagnosed with CLL

### Study Design

- The DCE survey was designed to assess patients' preferences for features of BTK inhibitor treatment options for CLL in accordance with the recommendations of the ISPOR Good Research Practices for Conjoint Analysis Task Force[4,5]
- The list of treatment attributes was established based on published literature and consultation with clinical experts
  - The attributes included in the DCE were progression-free survival (PFS; defined as no disease progression for 3-5 years); the impact of diarrhea, headache, atrial fibrillation, and hypertension on quality of life (QOL) (none or mild, moderate, or significant); formulation type (oral tablet or oral capsule); and dosing frequency (once per day or twice per day) (**Table 1**)
  - The impact of adverse events (AEs) on QOL was defined as the degree to which AEs disrupted patients' ability to carry out usual daily activities
- With the attributes and levels identified, a D-efficient design was used to generate the DCE choice tasks (also known as choice cards). This statistical method was designed to select combinations of attributes and levels that maximize the quality of data collected while minimizing the number of questions patients need to answer.[4,6] The literature indicates that 9-14 choice tasks per respondent provides an appropriate balance between data collection and cognitive burden.[7] Accordingly, each participant in this study completed 11 choice tasks
  - Each choice task included two hypothetical CLL treatment profiles (treatments A and B) with different combinations of levels associated with each attribute. Patients were asked to choose the treatment profile they preferred, after weighing the pros and cons of attribute levels indicated in the treatment profiles. An example choice task from the survey is shown in **Figure 1**
- The survey collected information on patient demographic characteristics, including age, sex, marital status, education level, employment status, distance from their caregiver, usage of High-Cost Medical Expense Benefit, and travel time to obtain blood cancer medication
- Clinical characteristics gathered from the survey included time since diagnosis, treatment experience, and most common side effects experienced from treatment
- This study also evaluated the importance of efficacy measures, including pausing the progression of cancer, increasing life expectancy, and increasing the chance of remission or cure, by having patients rate items on a scale of 0-10, where 0 indicated "not at all important" and 10 indicated "extremely important"

### Statistical Analysis

- Continuous variables were reported using means, medians, and standard deviations; categorical variables were reported using frequency counts and percentages
- Data from the DCE were analyzed using a conditional logistic regression model, with estimated coefficients used to calculate the relative importance of each attribute and to quantify patients' willingness to trade off specified treatment attributes

### Table 1. Attributes and Levels

| Type of Attributes | Attributes | Levels |
|---|---|---|
| Efficacy | Prevention of disease progression | 3 years |
| | | 4 years |
| | | 5 years |
| Safety | Impact of diarrhea on quality of life | None or mild |
| | | Moderate |
| | | Significant |
| | Impact of headache on quality of life | None or mild |
| | | Moderate |
| | | Significant |
| | Impact of atrial fibrillation on quality of life | None or mild |
| | | Moderate |
| | | Significant |
| | Impact of hypertension on quality of life | None or mild |
| | | Moderate |
| | | Significant |
| Convenience | Formulation type | Oral tablet |
| | | Oral capsule |
| | Dosing frequency | Once per day |
| | | Twice per day |

### Figure 1. Example of a Choice Task

**A. Japanese version (Original choice card)**

| 治療の特徴 | 治療A | 治療B |
|---|---|---|
| 病気の進行予防 | 3年 | 5年 |
| 下痢が生活の質に与える影響 | なしまたは軽度 | 重度 |
| 頭痛が生活の質に与える影響 | 重度 | 中程度 |
| 心房細動が生活の質に与える影響 | 中程度 | 重度 |
| 高血圧が生活の質に与える影響 | 中程度 | なしまたは軽度 |
| 製剤タイプ | 経口錠剤 | 経口カプセル |
| 投与回数 | 1日1回 | 1日2回 |
| どちらの治療法がより好ましいですか？ | ○ | ○ |

**B. English version (Translated choice card)**

| Treatment features | Treatment A | Treatment B |
|---|---|---|
| The treatment can prevent disease progression for ... | 3 years | 5 years |
| Impact of diarrhea on quality of life | None or mild | Significant |
| Impact of headache on quality of life | Significant | Moderate |
| Impact of atrial fibrillation on quality of life | Moderate | Significant |
| Impact of hypertension on quality of life | Moderate | None or mild |
| Formulation type | Oral tablet | Oral capsule |
| Dosing frequency | Once per day | Twice per day |
| Which treatment do you prefer? | ○ | ○ |

**Note:** The English version of the choice card was translated from the original Japanese version (used in the study) for the audience of ASH. A pop-up window with a description of the attribute was shown to participants when hovering over or clicking on an attribute (underlined in the figure).

## RESULTS

### Patient Characteristics

- A total of 50 Japanese patients with CLL completed the survey (mean age: 62 years; 30% female; 58% full-time, part-time, self-employed; 78% married or in a domestic partnership; 62% with bachelor's degree or higher) (**Table 2**)
- Most patients reported living close to their caregivers (82%), and the majority (86%) traveled <1 hour to obtain blood cancer medication. In terms of travel time to obtain CLL medication, 46% reported travel time of 1 hour, 40% traveled <30 minutes, and 14% traveled >2 hours (**Table 2**)
- The majority of patients (66%) were using the High-Cost Medical Expense Benefit, while an additional 10% were either currently applying or planning to apply for it
- More than half (60%) were diagnosed ≥5 years earlier; approximately one-quarter (24%) were treatment naive, and 76% had received ≥1 treatment (40% first line, 26% second line, and 10% third line or later) (**Table 3**)
- When considering the importance of efficacy measures, most patients prioritized CLL treatments that paused the progression of disease (76%), followed by those that increased the chance of remission or cure (72%) and extended life expectancy (72%), with corresponding average scores of 8.4, 8.4, and 8.0 of 10, respectively (**Figure 2**)

### Table 2. Summary of Patient Demographic Characteristics

| | Patients (N=50) |
|---|---|
| **Age, mean ± SD [median]** | 61.9 ± 10.7 [62.0] |
| **Gender, n (%)** | |
| Male | 35 (70.0) |
| Female | 15 (30.0) |
| **Marital status, n (%)** | |
| Married or in a domestic partnership | 39 (78.0) |
| Single | 11 (22.0) |
| **Education level, n (%)[a]** | |
| Below bachelor's degree | 17 (34.0) |
| Bachelor's degree or higher | 31 (62.0) |
| **Employment status, n (%)[a]** | |
| Full-time, part-time, self-employed | 29 (58.0) |
| Retired | 6 (12.0) |
| Unemployed | 12 (24.0) |
| Full-time domestic responsibilities | 1 (2.0) |
| **Living with or near the caregiver, n (%)** | 41 (82.0) |
| **Usage of High-Cost Medical Expense Benefit, n (%)[a]** | |
| Yes | 33 (66.0) |
| No | 11 (22.0) |
| Other[b] | 6 (12.0) |
| **Time to travel to obtain blood cancer medication, n (%)** | |
| Less than 30 minutes | 20 (40.0) |
| Travel 1 hour | 23 (46.0) |
| More than 2 hours | 7 (14.0) |

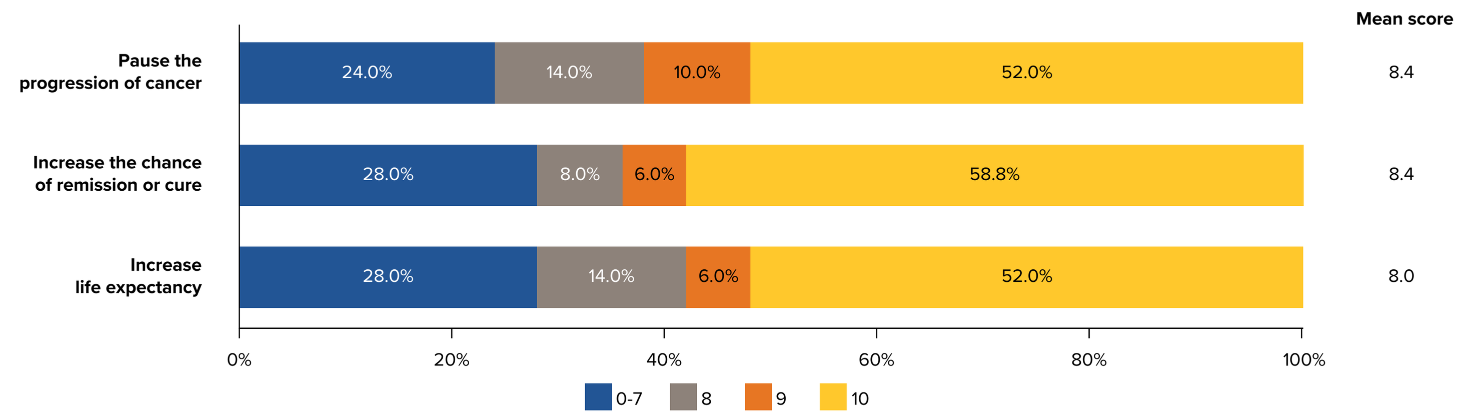
[a]The words "High-Cost Medical Expense Benefit" included the following clarifying link in the online survey: https://www.mhlw.go.jp/seisakunitsuite/bunya/kenkou_iryou/iryou/kokusai/setsumeisiryo/dl/en09.pdf [b]Other category includes respondents who selected "Currently applying or plan to apply" or "I don't know".
**Abbreviation:** SD, standard deviation.

### Table 3. Summary of Patient Clinical Characteristics

| | Patients (N=50) |
|---|---|
| **Time since diagnosis, n (%)** | |
| Less than a year ago | 5 (10.0) |
| 1 to <2 years ago | 8 (16.0) |
| 2 to <5 years ago | 7 (14.0) |
| 5 or more years ago | 30 (60.0) |
| **Line of treatment, n (%)** | |
| Treatment naive | 12 (24.0) |
| First line | 20 (40.0) |
| Second line | 13 (26.0) |
| Third line and above | 5 (10.0) |
| **Most common side effects experienced from treatment, n (%)[a,b]** | **N=38** |
| ≥1 side effect | 31 (81.6) |
| Fatigue or extreme tiredness | 12 (31.6) |
| Nausea and/or vomiting | 11 (28.9) |
| Constipation | 11 (28.9) |
| More frequent infections | 10 (26.3) |
| Skin rashes | 10 (26.3) |

[a]Categories were not mutually exclusive. [b]Asked among participants who have received ≥1 chronic lymphocytic leukemia treatment.

### Figure 2. Importance of Efficacy Measures

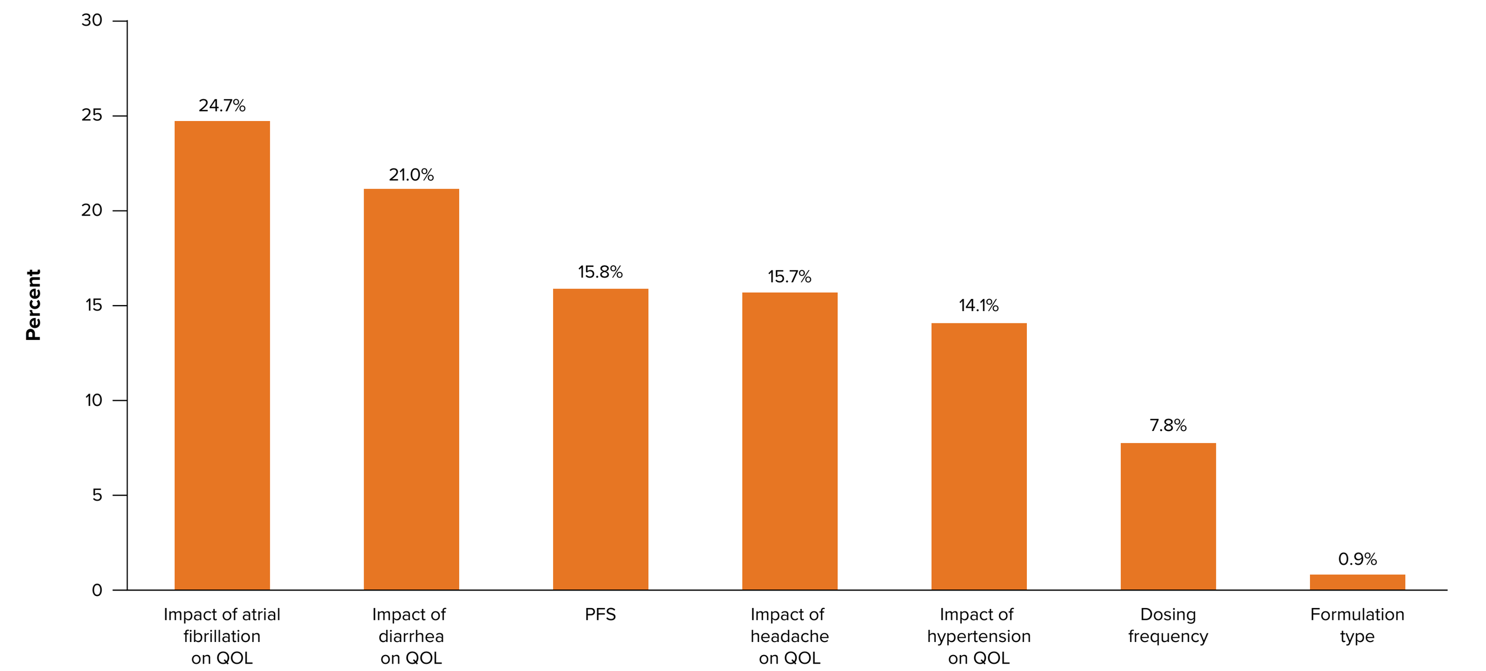



Patients were asked to rate the importance of each efficacy measure in their decision to select a treatment using a scale from 0 to 10, with 0 indicating "not at all important" and 10 indicating "extremely important." The bar plot displays the percentage of patients who rated each efficacy measure at 0-7, 8, 9, or 10. The mean score for each efficacy measure was calculated as the average rating across all patients.

### Patient Preference From DCE Results

- The DCE results showed that patients preferred treatments with greater efficacy, less impact of AEs on QOL, and lower dosing frequency ($P$<.05)
- The top three treatment attributes with the highest relative importance to patients were **impact of atrial fibrillation on QOL** (24.7%), **impact of diarrhea on QOL** (21.0%), **and PFS** (15.8%) (**Figure 3**)

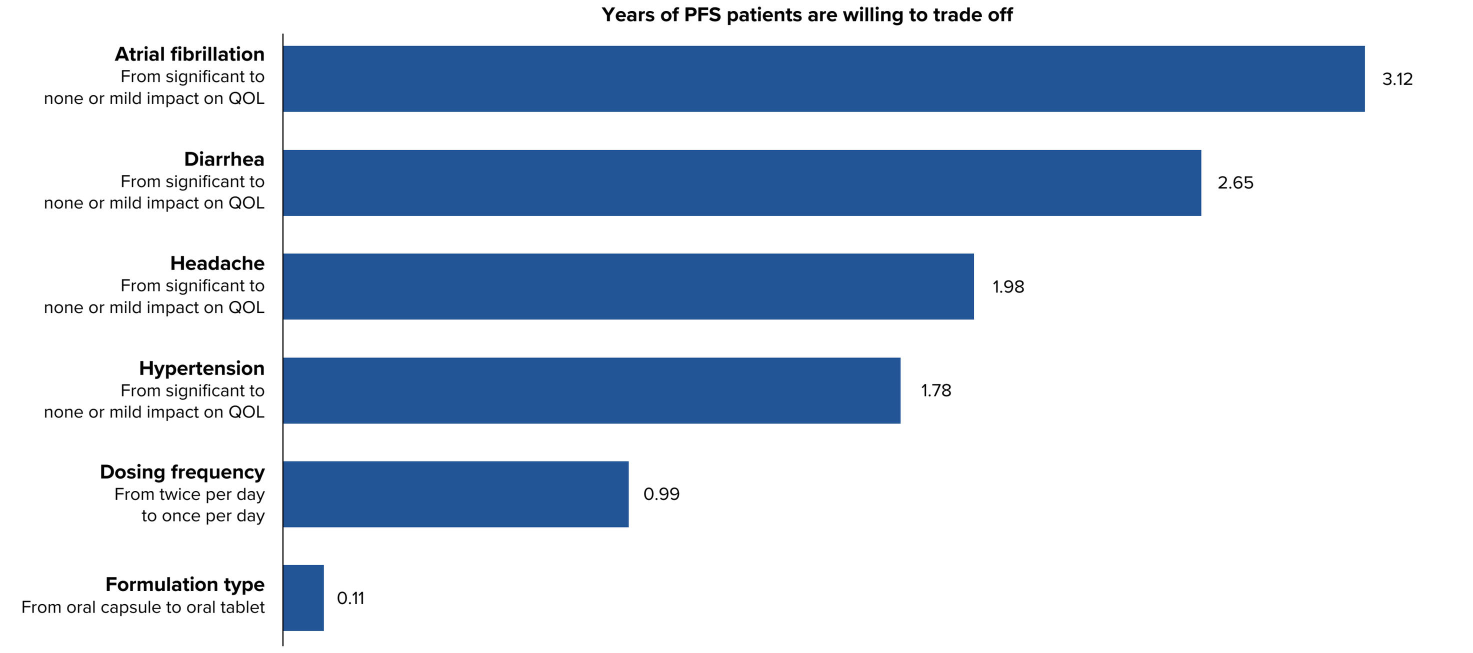
### Figure 3. Relative Importance of Attributes to Patients With CLL




**Abbreviations:** CLL, chronic lymphocytic leukemia; PFS, progression-free survival; QOL, quality of life.

- On average, patients were willing to trade off PFS for improved QOL, accepting reductions of 3.1 years for less impact of atrial fibrillation, 2.7 years for diarrhea, 2.0 years for headache, and 1.8 years for hypertension (none or mild vs significant impact). Additionally, they were willing to accept a reduction of 1.0 years of PFS to receive a treatment once per day rather than twice per day (**Figure 4**)

### Figure 4. Willingness-to-Tradeoff in Patients With CLL




**Abbreviations:** CLL, chronic lymphocytic leukemia; PFS, progression-free survival; QOL, quality of life.

## DISCUSSION

- These findings highlight the importance of integrating discussions about the impact of atrial fibrillation and diarrhea, in addition to PFS into shared decision-making for CLL treatment selection, as patients consider both minimizing the impact of side effects on QOL and treatment efficacy when making choices
- To minimize participants' response burden, a limited number of treatment attributes associated with BTK inhibitors were included in the DCE questions; the DCE literature suggests inclusion of five to seven attributes in a DCE design.[8] Other attributes not assessed in the study could have an impact on patient preferences

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