

# Infusion-Related Reactions Following First-Dose Obinutuzumab in Chronic Lymphocytic Leukaemia Patients at Sir Charles Gairdner Hospital

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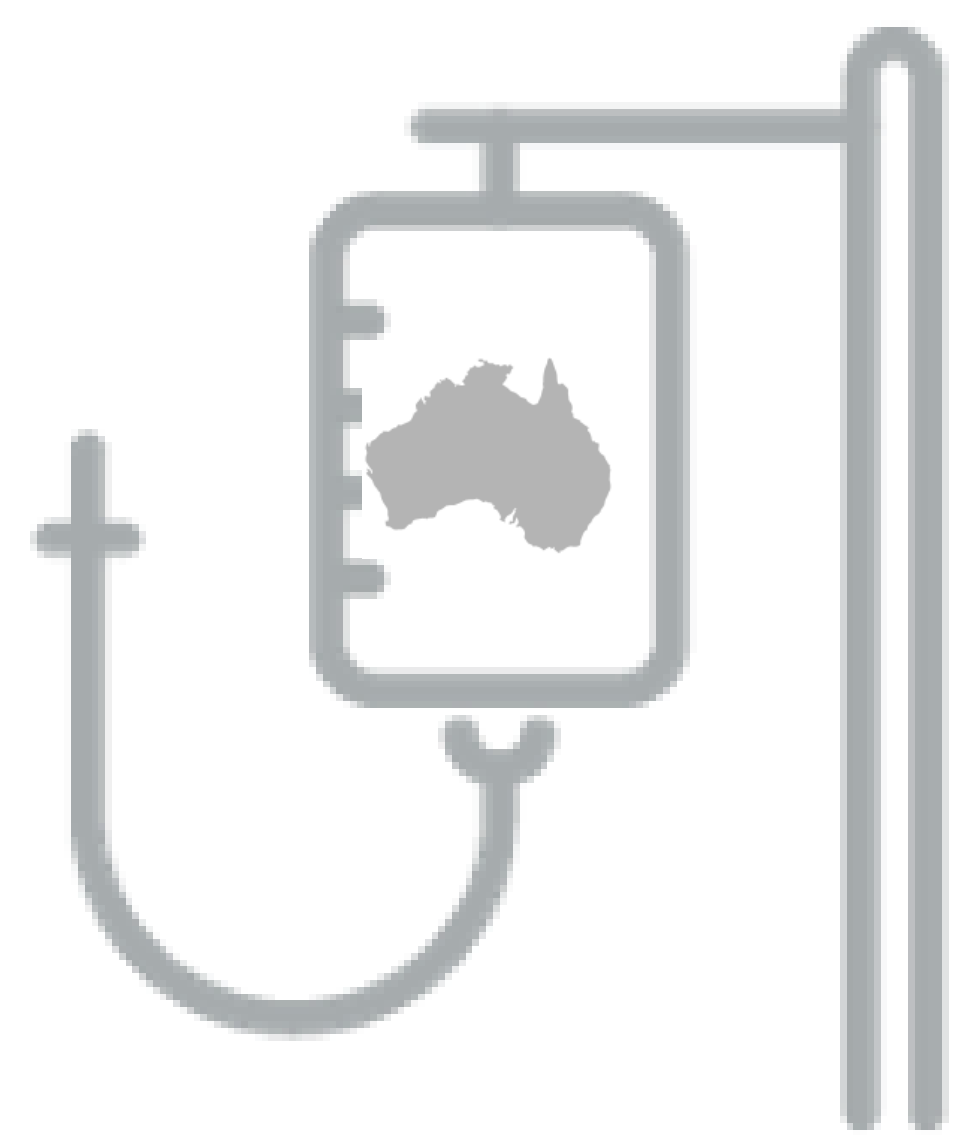
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## Background:

Chronic lymphocytic leukaemia (CLL) is an indolent B-cell malignancy usually considered incurable but responds well to treatment. Fixed duration therapy of 12 months with obinutuzumab, with venetoclax or chlorambucil, can produce long periods of remission. However, infusion-related reactions (IRRs) are common despite pre-medication, particularly during the first infusion. This usually requires hospital admission to facilitate prompt recognition and management of these reactions.

## Objective:

To determine the incidence and severity of infusion-related reactions in CLL patients treated with first dose obinutuzumab



## Methods:

CLL patients who received their first dose of obinutuzumab at Sir Charles Gairdner Hospital between December 2003, and February 2026 were included. Data were collected through retrospective chart review.

Patient and disease characteristics, including lymphocyte count, splenomegaly, and comorbidities, were recorded. Clinical outcomes analysed included IRR incidence and grade, management strategies, and associated hospital resource utilisation.

## Results:

### Baseline characteristics

- 52 patients with CLL received first-dose obinutuzumab between 2017–2025.
- Median age at first infusion was 73 years.
- 65% were over 70 years, making this a typical real-world CLL population.

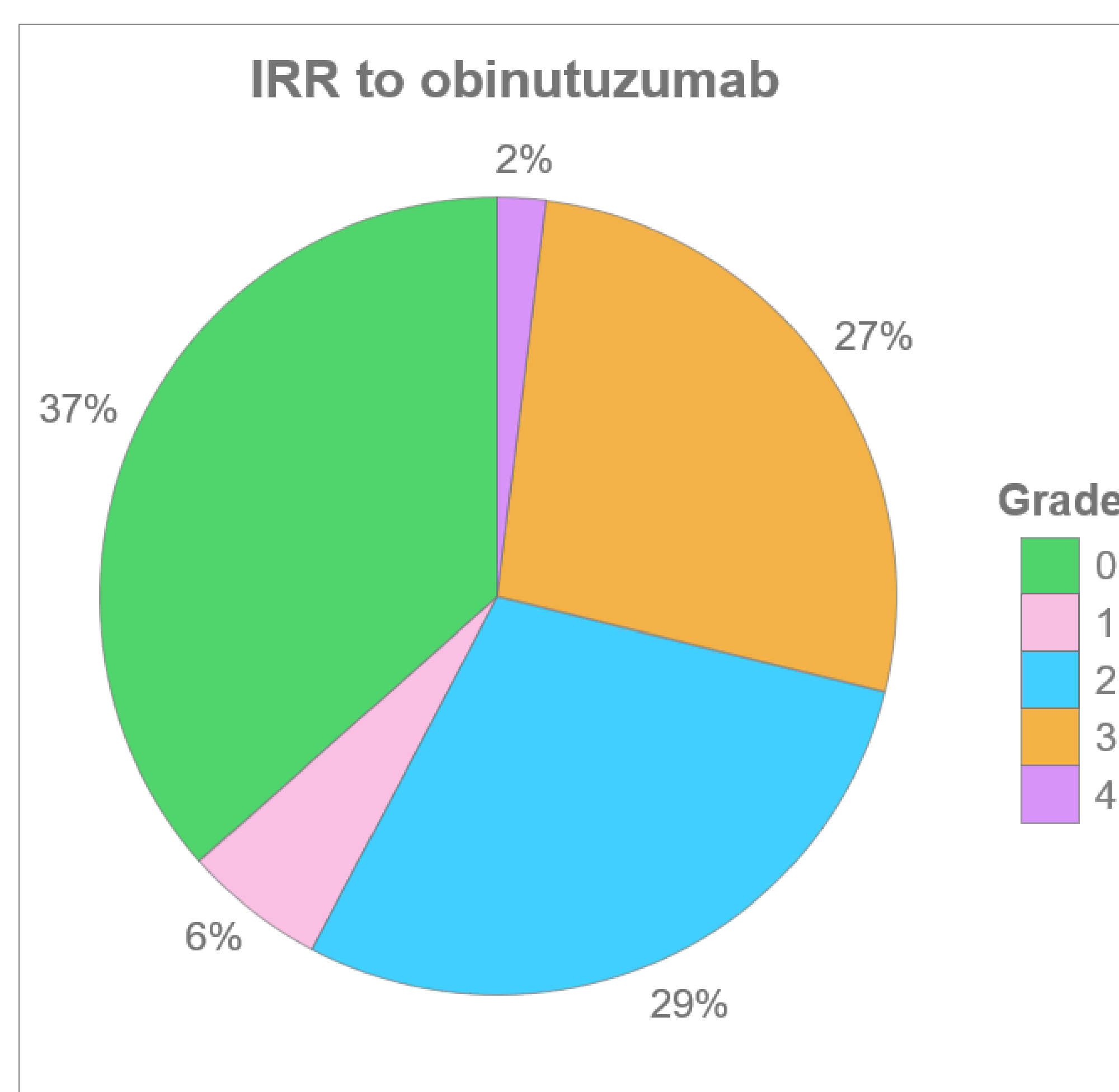


Figure 2. Distribution of infusion-related reaction severity during first-dose obinutuzumab

### Independent predictors of IRR

| Variable                  | OR   | 95% CI    |
|---------------------------|------|-----------|
| Male                      | 5.33 | 1.20–30.2 |
| Cardiac history           | 5.50 | 1.16–36.3 |
| Baseline lymphocyte count | 1.68 | 1.21–2.53 |

Table 1. predictors of IRR

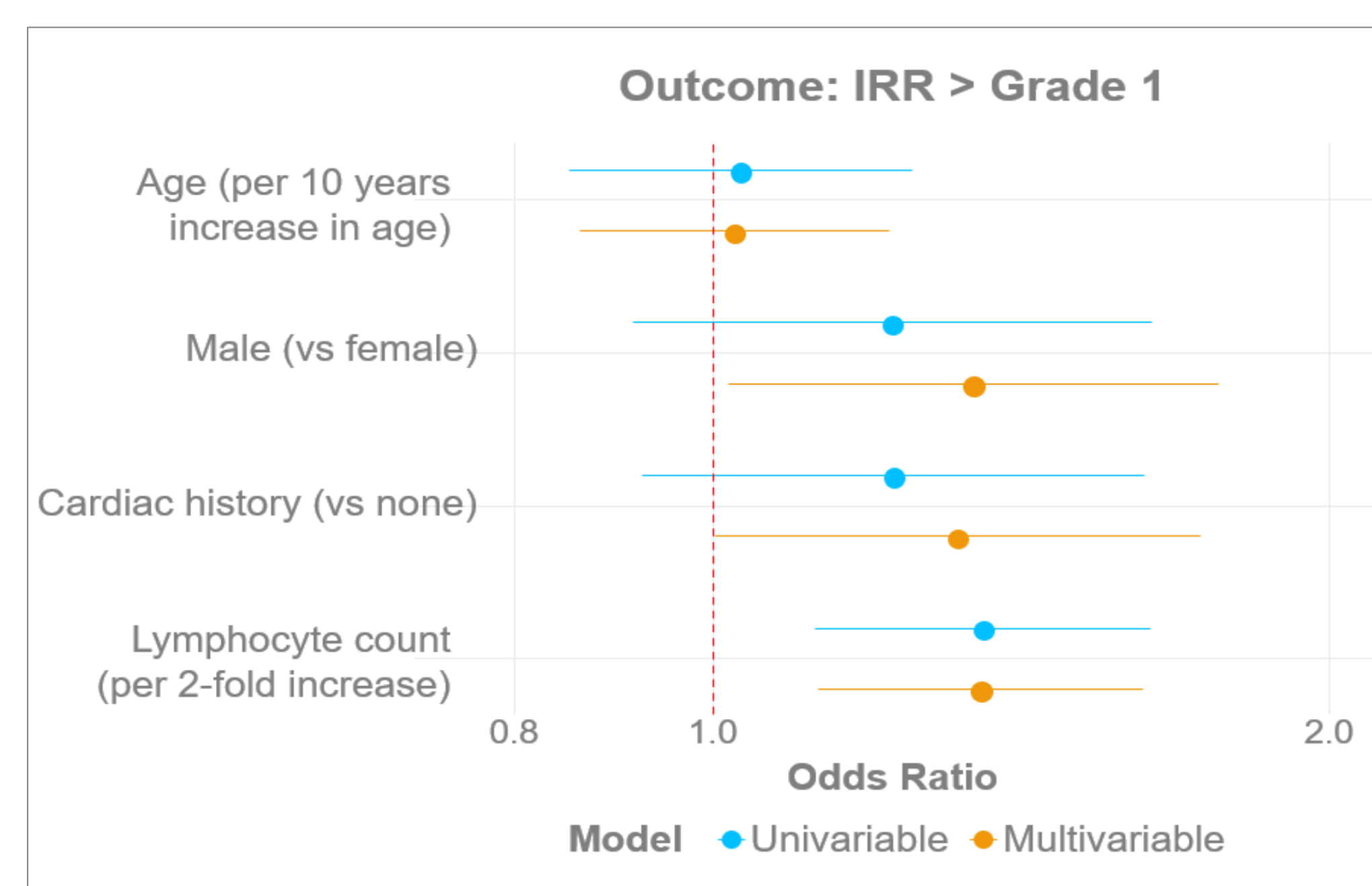


Figure 4. Predictors of IRR

| Characteristic                         | Overall<br>N = 52 <sup>1</sup> | Reaction (>Grade 1)          |                             | p-value <sup>2</sup> |
|----------------------------------------|--------------------------------|------------------------------|-----------------------------|----------------------|
|                                        |                                | FALSE<br>N = 22 <sup>1</sup> | TRUE<br>N = 30 <sup>1</sup> |                      |
| Inpatient stay                         | 44 (85%)                       | 16 (73%)                     | 28 (93%)                    | 0.058                |
| Admission                              |                                |                              |                             | 0.12                 |
| No inpatient stay                      | 8 (15%)                        | 6 (27%)                      | 2 (6.7%)                    |                      |
| Elective                               | 37 (71%)                       | 13 (59%)                     | 24 (80%)                    |                      |
| Acute                                  | 7 (13%)                        | 3 (14%)                      | 4 (13%)                     |                      |
| Length of stay for inpatient admission | 4.0 (4.0-6.0)                  | 4.0 (3.5-4.5)                | 4.0 (4.0-6.0)               | 0.3                  |

Table 2. Hospital admission and median stay

Patients received treatment across 3 different regimes.

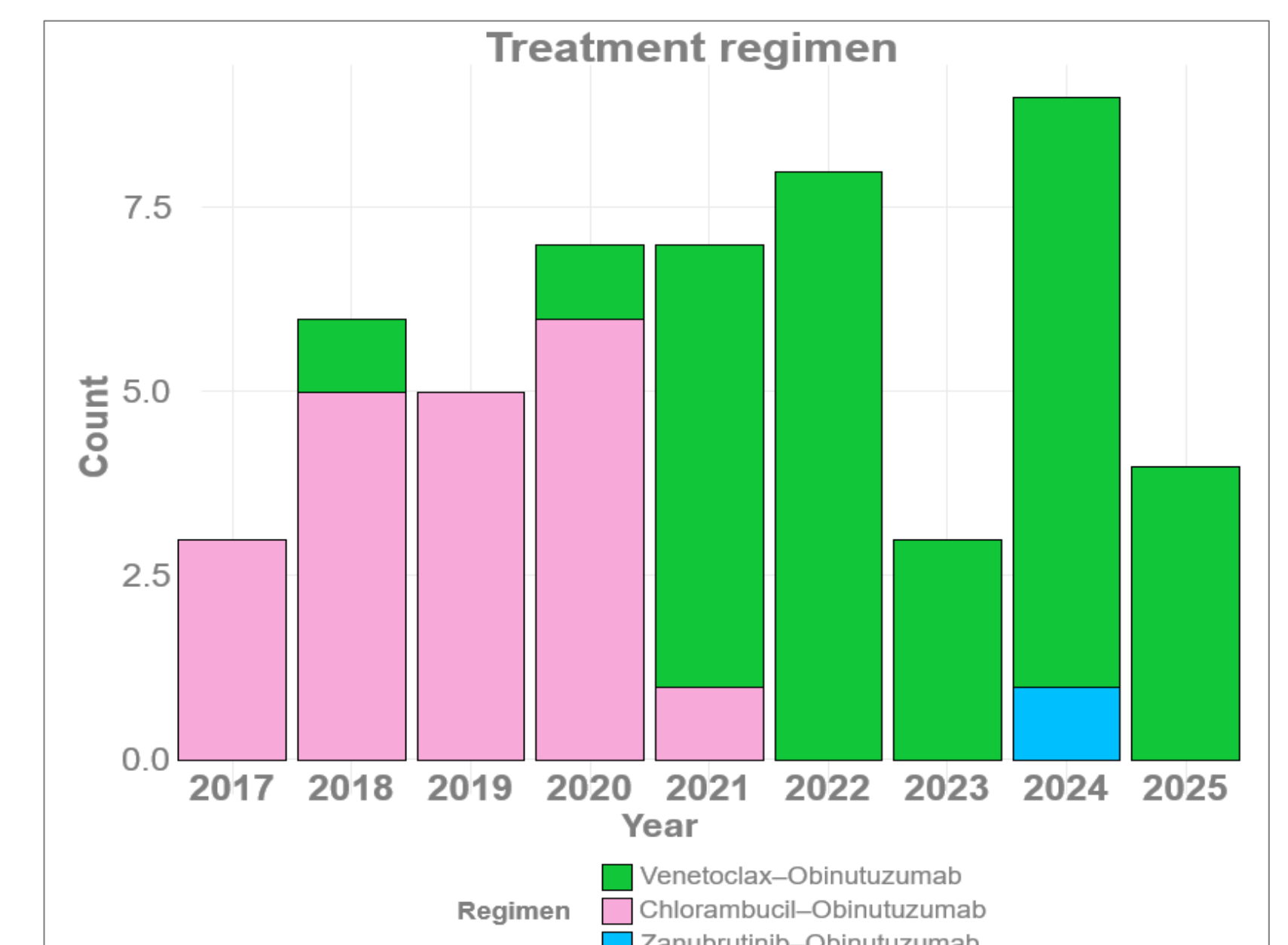


Figure 1. Treatment regime

- Two thirds (63%) of patients developed a clinically significant IRR (Grade  $\geq 2$ ).
- One third (33%) experienced a severe reaction (Grade 3–4).

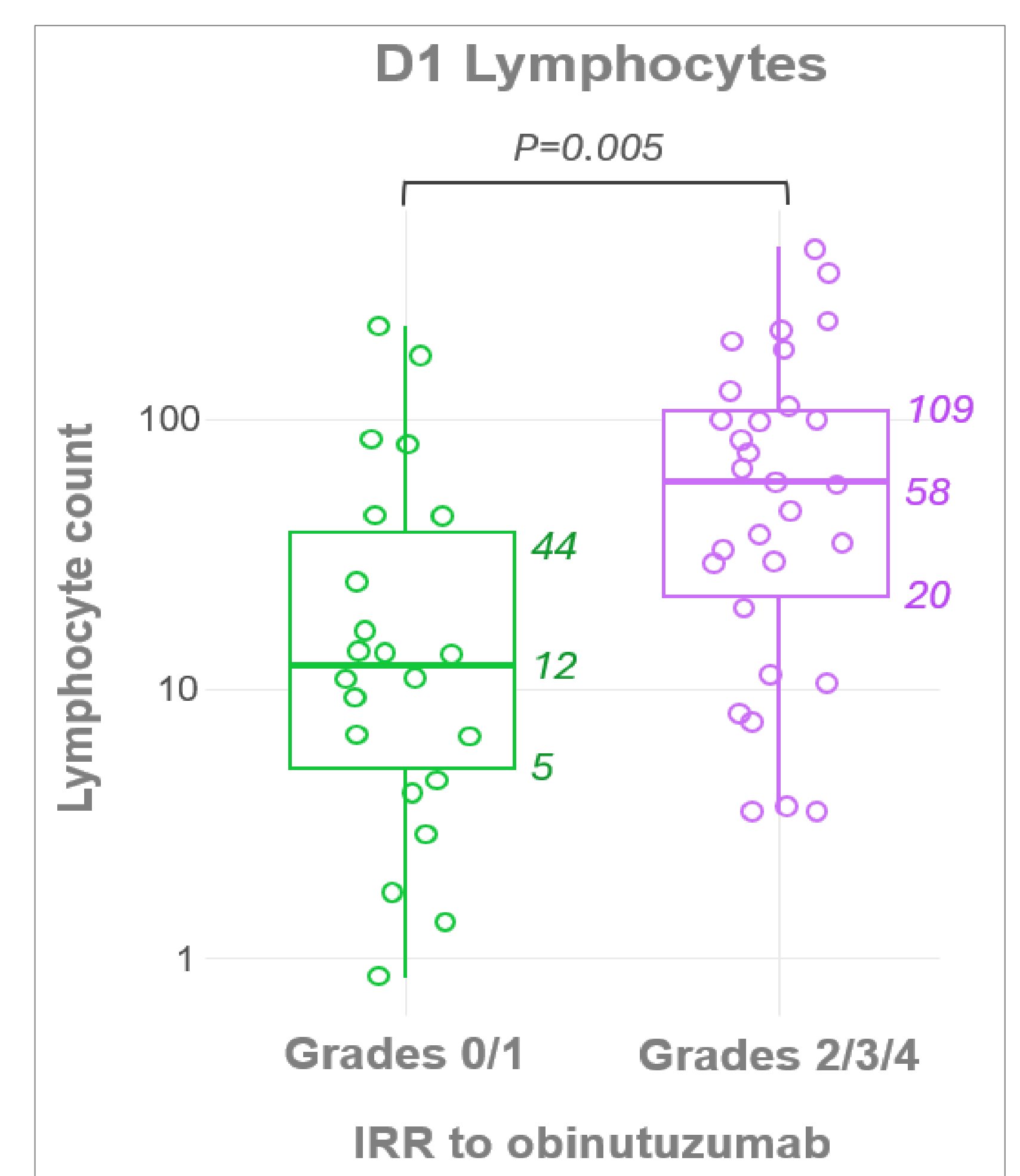


Figure 3. Baseline lymphocyte count

- Patients with higher lymphocyte counts were more likely to experience significant infusion reactions (Median 58 vs 12  $\times 10^9/L$ ;  $p = 0.005$ ).
- Every doubling of the lymphocyte count increased the odds of a significant infusion reaction by 68%.
- 44 patients required inpatient admission for 1<sup>st</sup> dose, with a median hospital length of stay of 4 days.

## Conclusion:

Infusion-related reactions are common during first-dose obinutuzumab, affecting nearly two-thirds of patients despite routine prophylaxis. Baseline lymphocyte count was the strongest predictor of clinically significant reactions, suggesting tumour burden plays an important role in IRR risk. New strategies are required to mitigate IRRs and reduce the burden on patients and health-resource utilisation, including enhanced pre-medication and alternative infusion rates.

