Safety and Efficacy of Ibritumomab Tiuxetan versus Rituximab in Newly Diagnosed and Relapsed Patients With Non-Hodgkin Lymphoma: A Systematic Review and Meta-Analysis

Authors: Khaled Albakri, Bashar Khater, Mohamed A. Aldemerdash, Hatim Nasruldin Shahin, Othman Saleh, Omar Al-Hawi, Mohamed Abdallah, Roa'a Alnajjar, Abdulrhman Khaity, Omar Ammari

Introduction

Rituximab is the standard therapy after chemotherapy induction for newly diagnosed non-Hodgkin lymphoma (NHL) patients. Recent evidence suggests radioimmunotherapy (RIT) may be as effective as rituximab for consolidation after NHL induction treatment. Although RIT using ibritumomab tiuxetan (ibritumomab) is approved for relapsed NHL, its use as a consolidation therapy for newly diagnosed NHL is debated.

Objectives

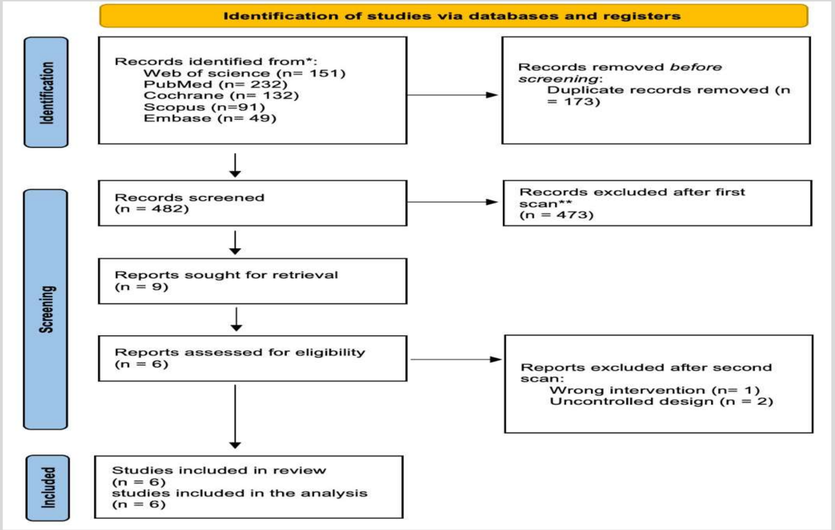
Compare remission rates and adverse events between ibritumomab and rituximab consolidation.

Methodology

A comprehensive search was conducted using PubMed, Web of Science, Embase, SCOPUS, and Cochrane databases until May 25, 2024, identifying 2437 records. This review includes studies investigating relapsed or newly diagnosed NHL patients. Our primary outcome is patients' response, including complete response (CR), unconfirmed complete response (CRu), partial response (PR), and overall response (OR). The secondary outcome is the safety of the therapies.

Results

Six studies with 466 participants were included. No significant differences between ibritumomab and rituximab groups regarding CR/CRu (odds ratio (OR): 0.78; 95% CI [0.46-1.33]), PR (OR: 0.90; 95% CI [0.45-1.83]), overall response rate (OR: 0.65; 95% CI [0.23-1.87]), and 5-year overall survival (OR: 0.70; 95% CI [0.27-1.80]) in newly diagnosed NHL patients. Subgroup analysis demonstrated no significant differences between newly diagnosed and relapsed patients for PR (P= 0.43), overall response rate (P= 0.26), and 5-year overall survival (P= 0.19). Relapsed patients treated with rituximab had higher CR/CRu rates than with ibritumomab (P= 0.03). The newly diagnosed patients in the ibritumomab group had higher rates of ≥3 adverse events (OR: 2.88; 95% CI [1.58-5.25]), neutropenia (OR: 16.23; 95% CI [5.76-45.72]), and thrombocytopenia (OR: 59.58; 95% CI [11.16-318.13])



Conclusion

No significant differences were found in key outcomes between ibritumomab tiuxetan and rituximab maintenance in newly diagnosed NHL patients. However, rituximab showed higher CR/CRu rates in relapsed patients compared to ibritumomab. Higher incidence of neutropenia and thrombocytopenia in newly diagnosed NHL patients were observed with ibritumomab. Ibritumomab tiuxetan could be an alternative to rituximab, but adverse events may limit its use. Therefore, careful consideration of patient characteristics and potential risks is necessary when selecting treatment. Further clinical trials are needed to optimize the safety and effectiveness of RIT.

References:

- Miura K, Tsujimura H, Masaki Y, et al. Consolidation with 90 Yttrium-ibritumomab tiuxetan after bendamustine and rituximab for relapsed follicular lymphoma. Hematol Oncol. 2021;39(1):51-59. doi:10.1002/hon.2809.
- Thomas E. Witzig et al., Randomized Controlled Trial of Yttrium-90–Labeled Ibritumomab Tiuxetan Radioimmunotherapy Versus Rituximab Immunotherapy for Patients With Relapsed or Refractory Low-Grade, Follicular, or Transformed B-Cell Non-Hodgkin's Lymphoma. JCO 20, 2453-2463(2002).
- DOI:10.1200/JCO.2002.11.076.