Comparative Efficacy, Safety, and Cost-Effectiveness of Subcutaneous Versus Intravenous Rituximab in Non-Hodgkin Lymphoma: A Systematic Review and Meta-Analysis

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Introduction

Rituximab is considered a mainstay of treatment for non-Hodgkin lymphoma (NHL) that is usually given intravenously. A subcutaneous formulation is proposed as an alternative to reduce healthcare burdens and costs while maintaining efficacy.

Objectives

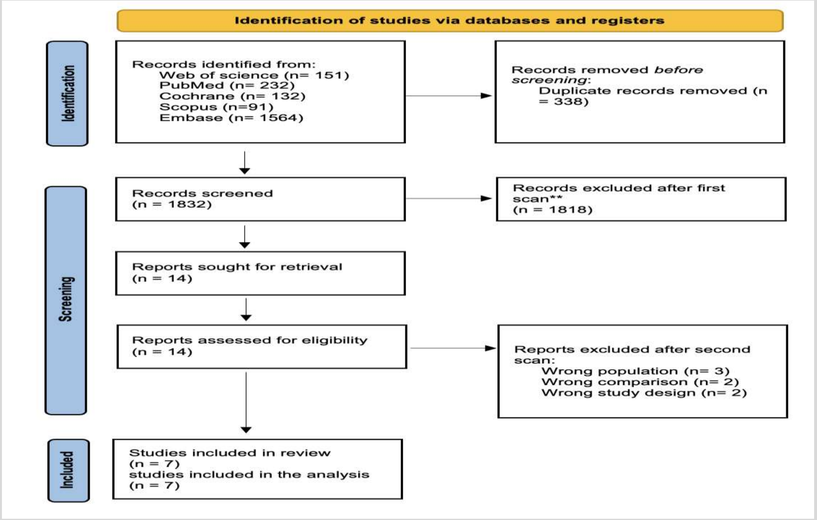
Assessment of efficacy, adverse events, costs and time of infusion between subcutaneously and intravenously administered rituximab.

Methodology

PubMed, Web of Science, Embase, SCOPUS, and Cochrane databases were searched from inception until 5/20/2024 identifying 1832 studies. Our inclusion criteria consisted of clinical or observational studies investigating NHL patients receiving rituximab intravenously versus subcutaneously. The primary outcome was patients' response including complete response (CR), unconfirmed complete response (CRu), partial response (PR), and overall response (OR). Secondary outcomes were therapy safety, administration time and cost.

Results

Seven studies with 1562 participants were included. No statistically significant difference in CR/CRu (OR: 1.21, 95% CI [0.96, 1.53]), PR (OR: 0.87, 95% CI [0.69, 1.10]), and overall response (OR: 1.11, 95% CI [0.80, 1.54]) between subcutaneous and intravenous rituximab groups. No significant differences in grade ≥3 adverse events (OR: 1.04, 95% CI [0.83, 1.32]), and any grade adverse events (OR: 0.90, 95% CI [0.63, 1.27]). However, the intravenous group had a higher rate of administration-related adverse events (OR: 1.69, 95% CI [1.31, 2.19]). The subcutaneous rituximab group had a lower total cost (MD: -1.73.71, 95% CI [-195.04, 2.19]), pharmacy technique cost (MD: -0.66, 95% CI [-1.03, -0.29]), rituximab cost (MD: -85.61, 95% CI [-152.28, -18.95]), and total process time (MD: -48.91, 95% CI [-53.61, -44.22]).



Conclusion

Subcutaneous rituximab is an alternative to the more conventional intravenous rituximab, offering comparable efficacy with fewer infusion-related reactions, shorter administration times, and lower costs. Despite these benefits, there is a gap between current research findings and the extent of subcutaneous rituximab utilization. We think this may be due to factors such as provider familiarity, institutional policies, and the costs associated with training individuals in subcutaneous rituximab administration. Our study highlights the importance of education and training to increase the utilization of subcutaneous rituximab in the context of NHL treatment.

References:

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