P1731 IBRUTINIB PLUS RCHOP VERSUS RCHOP ONLY, IN YOUNG PATIENTS WITH ACTIVATED B CELL-LIKE DIFFUSE LARGE B-CELL LYMPHOMA (ABC-DLBCL): A COST EFFECTIVENESS ANALYSIS

**Topic:** 35. Quality of life, palliative care, ethics and health economics

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**Background:**

The standard chemoimmunotherapy for Diffuse Large B Cell Lymphoma (DLBCL) is RCHOP (Rituximab, Cyclophosphamide, doxorubicin Hydrochloride, vincristine/Oncovin, and Prednisone), improving progression free and overall survival. However, many patients require subsequent treatment after refractory/relapsed disease.

Molecular B-cell differentiation subtypes of DLBCL have prognostic implications, with the ABC subtype being associated with inferior prognosis. As the pathophysiology of ABC-DLBCL involves a chronically active B-cell antigen receptor pathway, it was hypothesised that higher-risk ABC-subtype population may benefit from a Bruton’s tyrosine kinase inhibitor, such as ibrutinib. Thus, the PHOENIX trial exploring the outcomes of adding ibrutinib to RCHOP (I-RCHOP) for patients with ABC-DLBCL was developed. Overall, it was found that I-RCHOP yielded favourable outcomes for patients younger than 60-years, as compared to older patients, whose event free survival did not improve and had worse outcomes due to toxicity.

**Aims:**

As addition of ibrutinib may improve survival for younger patients, our study aimed to inform clinical decision-making using a cost-effectiveness decision analysis model, and to compare R-CHOP, with and without ibrutinib for patients with ABC-DLBCL.

**Methods:**

A comprehensive Markov decision analysis model was designed (TreeAge Pro Healthcare) to compare I-RCHOP to RCHOP alone in a hypothetical cohort of patients younger than 60-years and newly diagnosed with ABC-DLBCL. The patients underwent either treatment pathway and survived, experienced adverse events (e.g., febrile neutropenia), relapse, or died. Available data on salvage treatment, autologous stem cell transplantation and novel therapies such as chimeric antigen receptor T-cell (CAR-T) for relapsed/refractory disease, were incorporated. The probabilities of transitioning between states were evaluated on a 3-month cycle for a lifetime horizon of 30 years. Costs were obtained from a Canadian public health payer’s perspective (CAN$1=US$0.78) and inflation-adjusted for 2022. Data on health state utilities were incorporated, and sensitivity analyses were performed for key variables. An annual discount rate of 1.5% to both quality-adjusted life-expectancies (QALEs) was utilised. Model variability and uncertainty were assessed through probabilistic sensitivity analyses over 10,000 simulations.

**Results:**

Probabilistic analyses showed that, for a willingness-to-pay (WTP) threshold of CAN$150,000/ QALE, the addition of ibrutinib to RCHOP chemotherapy in younger patients with ABC-DLBCL was more cost-effective. I-RCHOP had greater QALE (7.9 years [SD: 0.04]) and the incremental cost-effectiveness ratio (ICER; cost gained per QALE) was CAN$16,478.84/QALE compared with RCHOP only strategy (QALE: 5.3 years [SD: 0.02]). Sensitivity analyses included key variables, including probability of adverse events, mortality associated with relapse and next-line managements, and showed that the model was robust.
Summary/Conclusion:

Our results informed us that I-RCHOP is more costly given the currently high market price for ibrutinib in Canada, however suggested that the preferred cost-effective treatment strategy for younger patients with ABC-DLBCL is RCHOP with ibrutinib. This approach was analysed to be dominant, when considering the high costs of salvage therapies such as stem cell transplantation and CART therapy, along with adverse events, overall survival, and higher quality of life. This decision-analytic model, though not absolute, provided relevant and robust results to help inform clinical decision making.