Cost effectiveness of oral fludarabine in chronic lymphocytic leukaemia: the French case


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
The study assessed the cost-effectiveness of 18 medication treatment strategies for untreated chronic lymphocytic leukaemia. The authors concluded that the use of oral fludarabine as first-line therapy should be favoured over mini-CHOP or chlorambucil. Despite limited reporting in some respects, overall, the methods used were satisfactory and the authors' conclusions appear reasonable.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study compared the cost-effectiveness of 18 treatment strategies for patients with chronic lymphocytic leukaemia (CLL) who had not previously undergone treatment.

Interventions
The 18 treatment strategies were reported in full. The main medications used as first- and second-line therapy included oral fludarabine, mini-cyclophosphamide, vincristine, prednisone plus doxorubicin (mini-CHOP) and chlorambucil. Various combinations of these were used to form the different treatment strategies.

Location/setting
France/secondary care.

Methods
Analytical approach:
A decision model was constructed. It was used in conjunction with a Markov model with a 3-year time horizon to compare the cost-effectiveness of the different strategies by combining data from different sources. The authors reported that the perspective adopted was that of the social security system (third-party payer).

Effectiveness data:
The effectiveness data were obtained from a review of the literature. Although certain criteria were applied for the selection of estimates, they were not reported clearly. Clinical trials appear to have been used. The process used to identify the data and the sources searched were not reported. The main clinical parameters were the response rate, median time to progression and median survival.

Monetary benefit and utility valuations:
None.

Measure of benefit:
The measure of benefit was the months free of disease progression.

Cost data:
The cost categories included were the cost of medication and hospitalisation treatment and side effects, the patients' transportation costs and the patients' follow-up costs. Resource use and cost data were either derived from national official databases or were based on actual data from three French hospitals. The price year was not reported and no discounting was performed.
Analysis of uncertainty:
Parameter uncertainty was investigated through probabilistic sensitivity analysis using a Bayesian second-order Monte Carlo simulation. All the parameters in the model were assigned prior probability distributions. The authors gave detailed descriptions of the derivation of these distributions.

Results
The results were presented in full, with graphical representation of the efficiency frontier for the different strategies.

The most cost-effective strategies were oral fludarabine as first-line treatment followed by either oral fludarabine in the case of disease progression or mini-CHOP in the case of refractory disease, or using only mini-CHOP as second-line therapy.

For chemotherapy sessions, the incremental cost-effectiveness ratio of the most effective strategy was EUR 1,353 per month free of progression gained.

The results of the sensitivity analysis were presented using cost-effectiveness planes. These demonstrated the robustness of the results.

Authors' conclusions
The authors concluded that strategies using oral fludarabine as first-line therapy for patients with CLL are more cost-effective than strategies using mini-CHOP or chlorambucil as first-line treatment.

CRD commentary
Interventions:
The interventions, including dosage, were reported clearly. The study was thorough in the coverage of alternative interventions, including current practice in the study setting.

Effectiveness/Benefits:
The effectiveness data were derived from published studies, but these were not appropriately referenced. No systematic search of the literature was reported. It is not possible to judge the validity of the data given the information reported in this paper. Uncertainty in the model parameters and assumptions was investigated using probabilistic sensitivity analysis. The results of this analysis were adequately reported, which enhances the generalisability of the study findings.

Costs:
The costs included would appear to reflect the authors' stated perspective. The resource use data and unit costs were well reported. The cost data appear appropriate for the study population and setting. However, the price year was not reported, so it will not be possible to revalue the results in future years. Although discounting was relevant, given the 3-year horizon of the analysis, the authors did not carry out any discounting.

Results and Analysis:
The model structure was presented graphically along with all relevant details and modelling assumptions. The authors conducted incremental analysis and the results were adequately presented. In addition, the methods used throughout the economic evaluation and the sensitivity analysis were well reported. Sensitivity analysis was conducted on modelling parameters and assumptions, thereby enhancing the generalisability of the study findings and the robustness of the study results. The authors outlined a number of possible limitations and their impact on the results.

Concluding remarks:
Despite limited reporting in some respects, overall, the methods used were satisfactory and the authors' conclusions appear reasonable.

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