

Executive Summary

Research Project: Economic Evaluation and Budget Impact of Fludarabine – Cyclophosphamide and Rituximab for the Treatment of B-cell Chronic Lymphocytic Leukemia

Chronic lymphocytic leukemia (CLL) is a type of cancer that progresses slowly and is unable to be completely cured. Fludarabine – a purine analog is an effective treatment for CLL and extend patients' lifespans. However, no cost-effective analyses for using fludarabine have been conducted in Thailand. Therefore, the objectives of this study are to conduct an economic evaluation for using fludarabine in the treatment of CLL as first-line and second line treatments in Thailand, and to determine its budget impact on the country.

This study utilized a Markov model to analyze the costs and quality-adjusted life years (QALYs) of CLL patients from the societal perspective for the life-time time horizon when fludarabine was prescribed to Rai stages III-IV or Binet stage C CLL patients, and Rai stage I-II or Binet stage B CLL patients who showed indications. Parameters which were taken into account consisted of the probability of transitioning to a different health status, health utility, treatment costs for CLL patients, and budget impacts on the country.

The results of the study showed that for CLL patients who were treated with fludarabine together with cyclophosphamide and rituximab (FCR) as first-line therapy and subsequently switched to palliative care due to drug resistance, the incremental cost-effectiveness ratio (ICER) was 1,638,133 baht/QALY gained when compared to the treatment option of chlorambucil and prednisolone. For CLL patients who received fludarabine and cyclophosphamide (FC) as the treatment regimen instead of FCR, the ICER was 198,731 baht/QALY gained when compared to chlorambucil and prednisolone. Since both regimens had higher ICER values than the willingness-to-pay threshold, they were not cost-effective. However, if the price of fludarabine was reduced by 20.84% to 4,573.77 baht/vial, then the FC regimen it would be cost-effective for first-line therapy. In the case that patients switched to FCR after first-line therapy treatments with either FC or FCR, both FC and FCR were not cost-effective.

For the use of fludarabine-based regimens as second-line therapy, it was found that the ICER for FC was 137,103 baht/QALY gained, and 1,736,759 baht/QALY gained for FCR when both regimens were compared to palliative care. As a result, FC is deemed to be cost-effective while FCR is not cost-effective. The 5-year budget impact for using FC for first-line and second-line therapies amounted to 165 million baht and 60 million baht, respectively.

The use of FC in treating CLL patients during first-line therapy was determined to not be cost effective. However, it became cost-effective if used as second-line therapy. Further guidelines for using this drug regimen should be developed if these results are translated into policy.

Key words: Cost-utility, chronic lymphocytic leukemia, Markov model, fluda

For more information: <http://www.hitap.net/en/documents/172446>