Cost-effectiveness of certolizumab pegol (Cimzia®) in the treatment of moderate to severe rheumatoid arthritis

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Summary

1. In March 2010 UCB (Pharma) Ireland Limited submitted an economic evaluation dossier on the cost effectiveness of certolizumab pegol (Cimzia®) to the National Centre for Pharmacoeconomics. Certolizumab pegol is licensed for the treatment of moderate to severe rheumatoid arthritis, in combination with methotrexate (MTX), when the response to disease modifying anti-rheumatic agents including MTX has been inadequate. It is also indicated as monotherapy in cases of intolerance to MTX or when continued treatment with MTX is inappropriate. Final amendments to the submission were submitted in July 2010. The evaluation was conducted from the perspective of the Irish Health Service Executive.

2. A cost utility analysis was done on both combination therapy (with methotrexate) and on monotherapy. A Markov cohort heath state transition cost utility model was submitted addressing the cost effectiveness of certolizumab pegol (both for combination therapy with methotrexate and for monotherapy) in comparison to alternative anti-TNF treatment available in Ireland. The model was run over a lifetime time horizon and costs and consequences were discounted at an annual rate of 4%.

3. The review group had some concerns in relation to the large withdrawal rates in each of the main trials RAPID 1 and RAPID 2 up to week 16 in both the active and placebo arms of the trials. The withdrawal rates in the placebo arms of the trials are considerably higher than those seen in other anti-TNF RCTs. One of the reasons for this may be that a relatively low MTX dose was administered in the RAPID trials. This may have lead to the lower response rates in the placebo groups and an inflated response to the study drug. The efficacy data used for a mixed treatment comparison excluded some evidence which may have influenced the relative effect ratios in comparison to the other anti-TNF agents. Long term differences between certolizumab pegol and the comparators are driven by the ACR response rates in the model. The review group considered that the derivation of long term effects from short term data (6 months) may overestimate the long term benefit of therapy.

4. EQ5D data was collected over a 52 week period in the RAPID 1 trial. However the EQ5D data from the clinical trial was only used to estimate utility values for the initial 6 months in the economic model. Mapping from the HAQ to EQ-5D

was used to derive utility estimates for subsequent model cycles. The review group had some concerns over the evidence presented to support the utility data used. The method of including costs according to HAQ scores in combination with other cost data may have resulted in an overestimation of costs involved. Adverse effects were not costed in the model.

5. The incremental cost effectiveness ratio (ICER) for certolizumab pegol was presented for both combination and monotherapy. The basecase ICER for certolizumab pegol in combination with MTX versus etanercept, adalimumab and infliximab was estimated at €**116,847/QALY, €17,606/QALY** and **€25,545/QALY** respectively**.** For monotherapy ICERs were presented against etanercept and adalimumab only as infliximab is not licensed for monotherapy. The ICER for certolizumab pegol against adalimumab was **€9,737/QALY** and certolizumab pegol was dominated by etanercept.

6. The probability of cost effectiveness at a willingness to pay (WTP) of €45,000 and €20,000 was presented. Certolizumab pegol in combination with MTX had a 7.1% probability of cost effectiveness at a WTP of €20,000 and 33.9% at a WTP of €45,000. For monotherapy the probability of cost effectiveness of certolizumab pegol at a WTP threshold of €20,000 is 14.6% and at a threshold of €45,000 is 27.6%.

7. The average annual costs per patient of certolizumab pegol therapy (average of first five years) including monitoring and administration (nurse training) are €20,123. Budget impact was estimated from the percentage market share envisaged for certolizumab pegol over the first five years following its introduction. The estimated gross budget impact of certolizumab ranged from €0.48 million in year 1 to €5.1 million by year 5.

   The review group noted that the prevalence rates for rheumatoid arthritis used for projecting budget impact were considerably lower than the 1% prevalence that is widely used.

8. The review group was not convinced of the cost effectiveness of certolizumab for the treatment of rheumatoid arthritis in patients who have failed MTX. Consequently we do not recommend reimbursement of certolizumab pegol at the submitted price.