NICE Single Technology Appraisal: tocilizumab for the treatment of systemic juvenile idiopathic arthritis

Additional analysis requested by ERG

8 September 2011

The following document provides answers to questions posed by the Evidence Review Group (ERG) on 7 September 2011, regarding Roche's ACD response.

Fully Incremental analysis

In your manufacturer response to the 'minded no' ACD Committee requests, the NICE team note the absence of a fully incremental analysis. As the Committee will ask the question at the 14 September appraisal Committee meeting, please can we ask that you consider providing the ICERs for TI vs IT and TA vs AT comparisons in the incremental analysis before the meeting?

In our original ACD response, we provided ICERs which we believed met the information request in section 1.2 of the ACD, rather than ones which strictly conform to an incremental analysis. The ERG's current request adds an additional treatment sequence not specified in section 1.2 of the ACD (anakinra → tocilizumab or AT), and requests that this be included in an "incremental analysis".

The absence of a "fully incremental analysis" in our ACD response was noted by the NICE team. Fully incremental analysis involves the calculation of incremental QALY gains and costs along a list of treatment options ranked by ascending cost. In order to ensure that TI vs IT and TA vs AT are compared as requested, it is necessary to separate infliximab-containing and anakinra-containing regimens, effectively producing two incremental analyses.

This approach is probably the most appropriate since it has been necessary to use efficacy statistics excluding the 'no fever' outcome for any treatment options including infliximab either as monotherapy or in a sequence with tocilizumab.

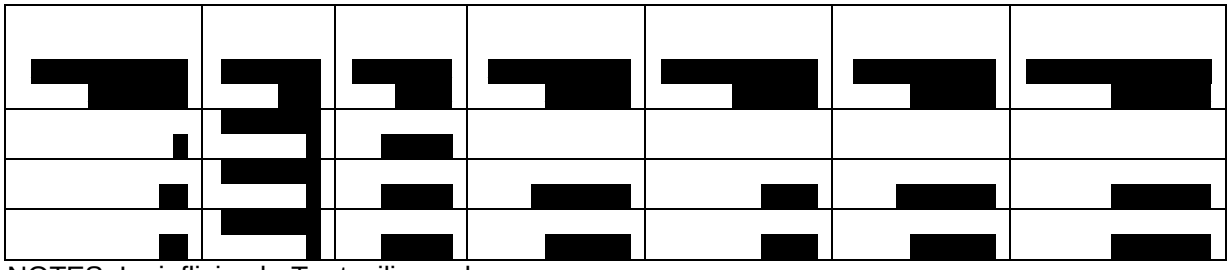
We provide the results with and without the proposed patient access scheme applied.

Results: Incremental analysis for infliximab-containing regimens

WITHOUT PAS

Treatment sequence	Total cost	Total QALYs	Incremental cost	Incremental QALYs	Incremental ICER	ICER versus baseline
I	£114,593	2.771				
IT	£139,675	3.385	£25,081	0.61	£40,856	£40,856
TI	£151,440	4.126	£11,765	0.74	£15,868	£27,187

WITH PAS



NOTES: I = infliximab, T = tocilizumab

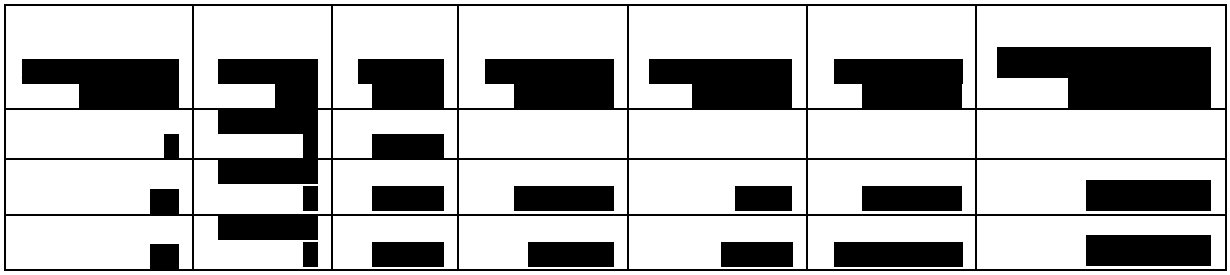
The incremental analysis results suggest that the introduction of tocilizumab following infliximab would be a borderline cost-effective change if the PAS is included, or a cost-ineffective change if the PAS is excluded. Subsequently re-ordering the infliximab→tocilizumab treatment sequence such that tocilizumab is given first appears to be associated with a cost-effective improvement in QALYs gained. Relative to infliximab alone, the tocilizumab→infliximab treatment sequence is cost-effective with or without the PAS.

Results: Incremental analysis for anakinra-containing regimens

WITHOUT PAS

Treatment sequence	Total cost	Total QALYs	Incremental cost	Incremental QALYs	Incremental ICER	ICER versus baseline
A	£136,871	3.370	£9,069			
AT	£162,955	3.947	£26,084	0.60	£45,170	£45,170
TA	£165,321	4.331	£2,366	0.38	£6,169	£29,606

WITH PAS



NOTES: A = anakinra, T = tocilizumab

The incremental analysis involving anakinra-tocilizumab sequences ranked tocilizumab→anakinra (TA) as the most expensive strategy when no PAS was applied. When the PAS was applied, anakinra→tocilizumab (AT) was the most expensive option. This effect is attributable to differences in health state costs which occur as a result of positioning tocilizumab first or second. Without the PAS, increased health state costs associated with lower efficacy of AT are masked by the greater drug cost associated with TA. [redacted]

The addition of tocilizumab to anakinra alone was a cost-effective option when the PAS was applied. However, AT was not cost-effective compared to anakinra alone, with or without a PAS. In the PAS analysis, the incremental comparison of AT to TA suggested that the AT strategy was dominated by TA, producing fewer QALYs at a greater expected cost.

END