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Treat-to-target in psoriatic arthritis – cost-effective in the biosimilar era

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For over a decade the concept of treat-to-target has become accepted as a treatment strategy for people with inflammatory arthritis. The benefit of tight control was first seen in the Tight Control of Rheumatoid Arthritis (TICORA) study in 2009 prior to availability of biologics.[1] In 2015, the Tight Control of Psoriatic Arthritis (TICOPA) study confirmed the benefit of treat-to-target in psoriatic arthritis (PsA) with a combination of conventional systemic and biologic disease-modifying anti-rheumatic drugs (csDMARDs and bDMARDs). This study demonstrated the benefits of treat-to-target in achievement of American College of Rheumatology (ACR) 20 (primary outcome) and many secondary outcomes (ACR50 and 70, psoriasis area and severity index [PASI] outcomes, functional ability).[2] On this basis, treat-to-target in psoriatic arthritis has been incorporated in international guidance for 7 years. Yet the rates of implementation of treat-to-target remain very low in routine clinical practice, with cost of biologics being a potential barrier.

The TICOPA trial reported within-trial cost-effectiveness results indicating that, while Tight Control (TC) conferred incremental quality-adjusted life year (QALY) benefits, it was not cost-effective at the National Institute for Health and Care Excellence (NICE) willingness-to-pay threshold range of £20,000-£30,000, having an incremental cost effectiveness ratio (ICER) of £50,723.[2,3] The excess costs associated with the tight control arm related particularly to more frequent visits (4-weekly rather than 12-weekly) and increased drug costs, particularly related to the increased use of bDMARDs.

Although 4-weekly review was continued throughout the TICOPA trial in the tight-control arm, there was recognition that this was unlikely to be translated to clinical practice; following a treatment change, 4 and 8-week reviews may be too early to judge response. In addition, once patients achieve a treatment target, neither clinicians nor patients require frequent follow-up visits. Thus, a sensitivity analysis was performed assuming identical 12-weekly appointments in both arms which reduced the bootstrapped ICER to £26,909.[2,3]

At the time of the previous health economic analysis, biosimilars were not yet available for commonly used bDMARDs. Since then, rheumatology has seen the advent of biosimilars of infliximab, etanercept and adalimumab. Subsequently, there has been a greater reduction in cost of both originator and biosimilar compared to previous estimates. Given this, we re-ran the analysis substituting prices for adalimumab, infliximab and etanercept with less expensive biosimilar drugs (for Amgevita, Zessly and Benepali, respectively) not available for use during the original trial. An

assumption was made that these medications offered similar treatment effects (as shown in the original TICOPA trial and that there was a 100% substitution from original treatment to biosimilar.

The cost-utility analysis was re-run and yielded a deterministic ICER of £25,487 per QALY; this is within the £20,000-£30,000 willingness to pay per QALY gain threshold, indicating cost-effectiveness. Combining this with a scenario analysis whereby consultation costs were assumed to be equivalent across arms (i.e. 12-weekly appointments) the deterministic ICER was £14,121. Modelling the benefits of T2T over a longer time horizon or including the productivity impact are likely to reduce the ICER further. The MONITOR study (ClinicalTrials.gov NCT03531073) is currently implementing treat-to-target within NHS clinics with 12-weekly review. This long-term study is measuring impact on work productivity and will include health economic analysis to compare to the TICOPA study in future.

Although implementation of a T2T strategy in PsA in practice has proved difficult[4] the above analysis suggests cost is now less of a potential barrier. Proving the cost-effectiveness of treat-to-target in PsA, related to the reduced costs of biosimilars, may allow healthcare regulators such as NICE to support this approach, thus driving change in clinical practice.

Declaration of interest

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