BIOMARKER-BASED WITHDRAWAL OF BIOLOGIC THERAPY IN NON-SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS: A HEALTH ECONOMIC EVALUATION

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Introduction

Guidelines for biologic therapy withdrawal decisions in non-systemic juvenile idiopathic arthritis (JIA) are lacking. Biomarker testing could predict a patient's flare-up risk after withdrawal, enabling personalized, safe and cost-effective withdrawal decisions.

Objectives

Evaluate the cost-effectiveness of biomarker-based biologic therapy withdrawal in non-systemic JIA compared to usual care.

Methods

A health economic model was developed for assessing 3 withdrawal strategies, reflecting early withdrawal in an increasing percentage of patients, starting with those with the lowest flare-up risk: Cautious (20%), Balanced (46%) and Relaxed (75%), compared to Usual Care in which biologics are randomly withdrawn early in 74% of patients. A cycle length of one month and a ten-year time horizon were used. Model inputs were based on data from the UCAN CAN-DU cohort, expert opinion and literature. A probabilistic analysis was performed to reflect uncertainty in model input.

Results

Costs of usual care were €82,038, and decreased to €80,322 (-€1,716), €79,582 (-€2,456), and €79,453 (-€2,585), for the Cautious, Balanced and Relaxed strategy, respectively. QALYs in usual care were 7.04, and increased to 7.29 (+0.25), 7.22 (+0.18), and 7.10 (+0.06), respectively. The incremental cost-effectiveness ratio for each strategy is -€6778/QALY, -€13,639/QALY and -€43,835/QALY. Flare-up rates within 1 year of stopping biologics decreased from 59% in usual care to 44%, 49%, 56% in the strategies.

Conclusion

Incorporating biomarker testing in biologic therapy withdrawal decisions in non-systemic JIA appears cost-effective. The benefits of biomarker-guided withdrawal decisions depend on balancing cost savings from reduced time on biologic therapy against the acceptable risk of flare-ups, which may vary by country.