Economic Evaluation of tofacitinib for the treatment of active polyarticular juvenile idiopathic arthritis in Greece.

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Background

- Juvenile idiopathic arthritis (JIA) is a heterogeneous collection of inflammatory arthritis of unknown aetiology with onset prior to age 16 years and a minimum duration of 6 weeks [1].
- Polyarticular JIA (pJIA) is a subset of JIA that is defined by the presence of four to five affected joints during the first six months of illness[2]. As with all forms of JIA, pJIA is associated with decreased health-related quality of life (HRQoL) and risk of permanent joint damage[2].
- The disease may persist into adulthood, causing ongoing significant morbidity and impaired quality of life[2]. Tofacitinib citrate is an oral JAKi with functional selectivity for cytokine receptors associated with JAK1 and/or JAK3.
- The results of the Phase III study [3] indicated that the occurrence of disease flare from double-blind randomisation through to week 44 of study was significantly lower in the Tofacitinib group compared to the placebo (PBO) group (p-value=0.0031), with a difference of proportions (Tofacitinib minus PBO) of -23.69% (95% CI: -39.41% to -7.97%).
- In addition, at week 44, a significantly greater proportion of subjects treated with Tofacitinib achieved JIA American College of Rheumatology (ACR) 50, 30, and 70 responses compared to subjects treated with PBO (p=0.0166, p=0.0031, and p=0.0387, respectively) [3].
- Tofacitinib seems to be an effective option for patients with JIA, but it may impose a tangible cost to healthcare payers. The balance of treatment efficacy and costs should be examined to maximize value-for-money in healthcare spending. Based on local clinical practice, adalimumab is the most prescribed treatment comparator on the grounds that it is an effective and widely tested therapy in the Greek healthcare setting, representing the most marketed therapy for the treatment of pJIA (standard practice).
- Given that no direct comparative clinical study of relative efficacy of tofacitinib and adalimumab exist in pJIA, systematic literature reviews and indirect treatment comparisons (ITC) were conducted. The ITC showed no statistically significant differences between tofacitinib and the chosen comparator (adalimumab) in terms of risk of disease flare and JIA ACR responses. Therefore, tofacitinib can be considered similarly clinically effective to the currently available biologics with respect to these outcomes in the treatment of pJIA.
- These findings give the ground to conclude that the two products can conservatively be considered comparable in terms of efficacy; meaning that economic evaluation will be based on a comparison of costs only.

Objective

- The objective of the present study was to evaluate the cost-comparison of tofacitinib compared to currently marketed treatment option in patients with active pJIA who have responded inadequately to previous therapy with disease-modifying antirheumatic drug (DMARDs) in Greece.

Methods

- The population of the model is composed of patients with active pJIA (rheumatoid factor positive [RF+] or negative [RF-] polyarthritis and extended oligoarthritis) in patients 2 years of age and older, who have responded inadequately to previous therapy with DMARDs.
- The patient's characteristics were extracted from tofacitinib clinical trial [3].
- This present study employed a cost-comparison to capture the economic consequences for treatment of pJIA with different agents over a 25 year- horizon.
- The model provides a useful summary measure that compares the total cost per patient for each treatment option.
- A Markov model with 3-month cycle was used to compare tofacitinib with adalimumab (Figure 1).
- The perspective of the analysis was that of a Greek public payer (EOPYY) and an annual discounting of 3.5% was applied for model outcomes.
- Healthcare resource use and cost inputs relating to drug acquisition, complications event and disease management were considered in the model.
- Since the analysis was conducted from the public payer perspective, only direct medical costs which are reimbursed in the context of the public sector were accounted for (Table 1).
- Probabilistic sensitivity analysis (PSA) and one-way sensitivity analysis (OWSA) were performed.

Figure 1: Model Structure

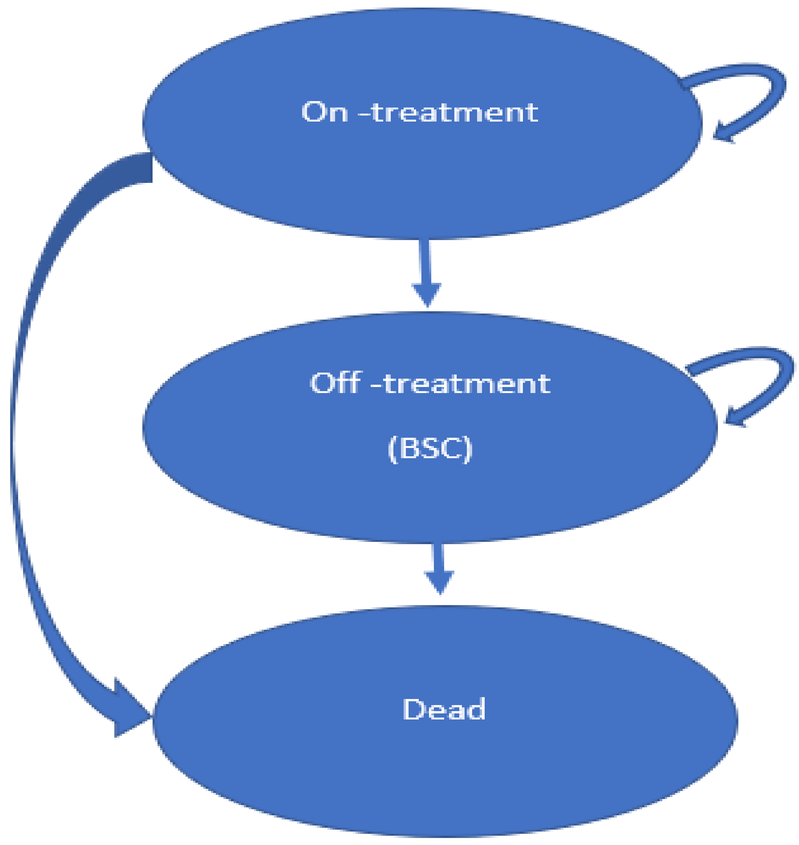

Table 1: Main cost inputs of the model.

Parameters	Unit cost	Source
Annually drug acquisition cost based on model calculation		
Tofacitinib (5mgTab BT x 56 Tabs)	€6,196	Greek Ministry of Health[4]
Adalimumab (40MG/0,4 ML PF.SYR BTx1)	€7,583	
Complications event costs		
Flare	€1,145	Average cost: DRG code[5]:M12Ma, M12Mβ, M12X
Infections	€3,162	Average cost: DRG code[6]:M66M, M66X, M69M, M69X

Results

- The analysis indicated that over a lifetime horizon, the total cost per patient for tofacitinib and adalimumab were estimated to be **€88,177** and **€93,905** respectively (Table 2).
- Tofacitinib was estimated to a be a cost-saving treatment option over adalimumab (**-€5,728**).
- The OWSA results were found fairly insensitive. No major deviations occurred and, under almost all sensitivity-analyses, tofacitinib preserved its cost-saving profile.
- Moreover, PSA confirmed the robustness of base case results.

Table 2: Base case model results

Treatments	Total lifetime cost[a]	Incremental Cost of Tofacitinib vs Adalimumab
Tofacitinib	**€88,177**	**-€5,728**
Adalimumab	**€93,905**	

Notes: [a] Total costs include drug acquisition, administration, adverse event, and disease management costs.

Conclusion

Tofacitinib is likely to provide similar or greater health benefits due to the method of administration at lower cost compared to adalimumab for the treatment of patients aged 2 years and older with active JIA in Greece.

References

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Disclosures

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