EE432

Number Needed to Treat and Associated Costs per-Additional-responder of Dupilumab Versus Tralokinumab in Adult Patients with Moderate-to-Severe Atopic Dermatitis

Atopic dermatitis

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Background

- Dupilumab and tralokinumab are European Medicines Agency-approved biologics for treating patients (aged ≥12 years) with moderate-to-severe atopic dermatitis (AD), who are candidates for systemic therapy. Dupilumab is also approved in children (aged 6 months to 11 years) with severe AD, who are eligible for systemic therapy. [1, 2]
- Both biologics have been shown to be efficacious as a monotherapy and in combination with topical corticosteroids (TCS) in placebo-controlled phase 3 trials; however, there are no head-to-head comparisons to evaluate the relative efficacy of both biologics.[3]
- A recent network meta-analysis (NMA) showed dupilumab in combination with TCS to be associated with greater efficacy, vs. tralokinumab.[3]
- Hence, the number-needed-to-treat (NNT) and cost per-additional responder (CPR) analysis could help the clinicians and payers to contextualise the clinical and economic benefits of dupilumab and may assist in the informed treatment and reimbursement decisions.[4]

Objective

- **To compare the NNT of dupilumab and tralokinumab, both in combination with TCS, vs. placebo and the CPR (derived from NNT) for dupilumab + TCS vs. tralokinumab + TCS in adult patients with moderate-to-severe AD from the England's National Healthcare Service (NHS) perspective.**

Conclusions

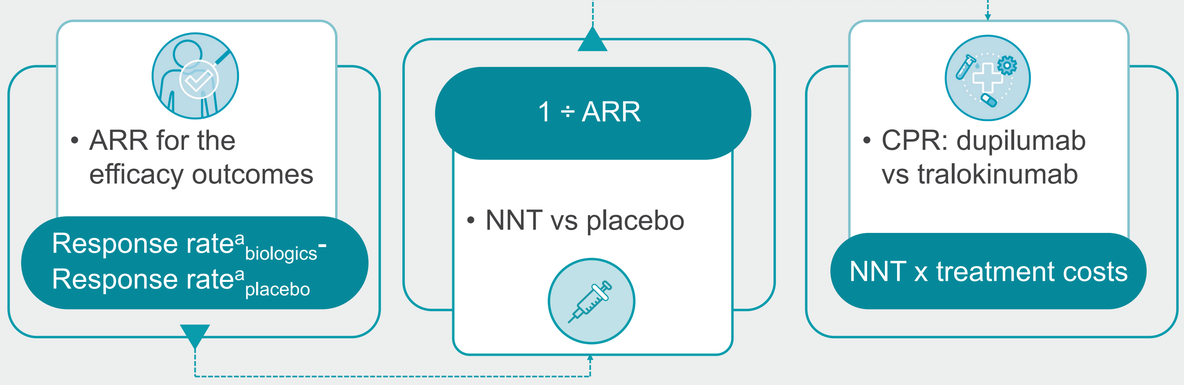
- **Dupilumab + TCS had a lower NNT than tralokinumab + TCS vs. placebo; the CPR for dupilumab + TCS was lower compared to tralokinumab + TCS in patients with moderate-to-severe AD even with a list price of 15% higher than tralokinumab.**
- **Between both biologic treatments, dupilumab shows a better value proposition for patients and England's NHS.**
- **Using NMA rather than a randomised controlled trial for deriving efficacy outcomes and using list prices which may differ from the net prices by a wider margin than those tested in sensitivity analyses, were key limitations of this analyses**

Methods and Results

NNT model

- An Excel-based NNT model was developed to estimate the NNT to achieve one additional responder after a 16-week treatment (NHS stopping rule) with dupilumab and tralokinumab, both in combination with TCS.
- The model required efficacy and drug costs, from the NHS perspective, as inputs (**Figure 1**).

Figure 1. Model structure.



[a]Response rate was derived from the published NMA and was measured as the proportion of patients achieving EASI-75 or IGA 0/1 with biologic (dupilumab or tralokinumab) or placebo treatment.
ARR, absolute risk reduction; CPR, cost per-additional responder; EASI, Eczema Area and Severity Index; IGA, Investigators Global Assessment; NMA, network meta-analysis; NNT, number needed to treat.

Efficacy outcomes and data sources

- The response rates considered were the proportion of patients achieving 75% reduction from baseline in Eczema Area and Severity Index (EASI-75) or an Investigator's Global Assessment score of 0 or 1 (IGA 0/1) at week 16.
- The relative efficacy data were derived from a published NMA comparing the available systemic therapies for the treatment of patients with moderate-to-severe AD.[3] When only odds ratio are reported, data from dupilumab trials were used on top of the NMA data to estimate the relative efficacy.[5]

Treatment costs and data sources

- CPR analysis considered drug acquisition costs as per the list prices of dupilumab (£1,265) and tralokinumab (£1,070) in England from the British National Formulary, 2022.
- The treatment cost was calculated based on the approved dosing schedule (once every 2 weeks) for a treatment duration of 16 weeks.
- Sensitivity analyses (SA) with a 10% discount rate for tralokinumab were performed to assess the robustness of the analysis.

Results

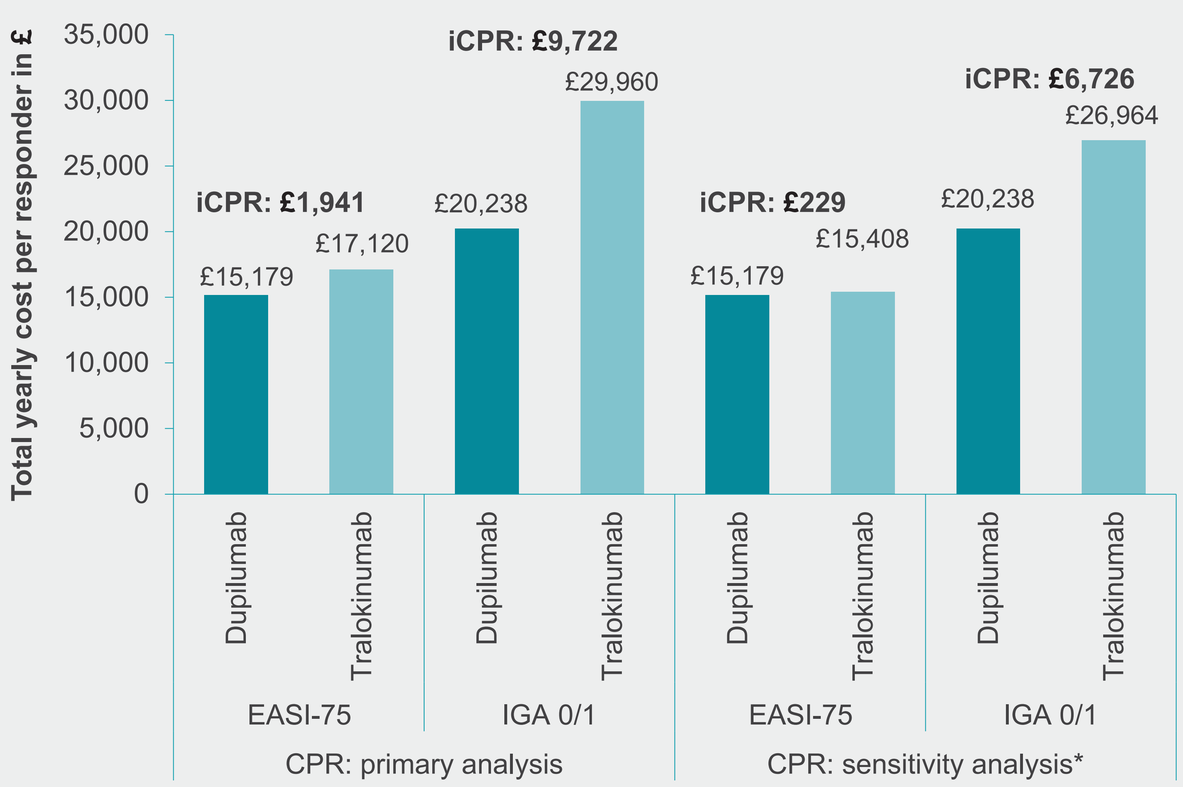
- The NNT to achieve one additional responder was lower for dupilumab + TCS vs. placebo than that for tralokinumab +TCS vs. placebo for both EASI-75 (3 and 4) and IGA 0/1 (4 and 7) (**Figure 2**).
- The total yearly CPR for EASI-75 (£15,179 vs. £17,120) and IGA 0/1 (£20,238 vs. £29,960) were lower for dupilumab than for tralokinumab with an incremental CPR of £1,941 and £9,722, respectively (**Figure 3**).
- Similar findings were also observed in the SA with a 10% discounted rate for tralokinumab (**Figure 3**).

Figure 2. Dupilumab + TCS showed a lower NNT than tralokinumab + TCS, vs. placebo to achieve one additional responder.

Efficacy endpoint	Response rate in % (95% CI)	NNT vs. Placebo
EASI-75	Dupilumab: 65.0 (60.0, 69.0)	3 Dupilumab
	Tralokinumab: 52.0 (36.0, 68.0)	4 Tralokinumab
	Placebo: 27.0 (23.0, 30.0)	
IGA 0/1	Dupilumab: 38.5 (30.1, 46.8)	4 Dupilumab
	Tralokinumab: 26.9 (8.9, 60.7)	7 Tralokinumab
	Placebo: 12.5 (10.8, 13.8)	

CI, confidence interval; EASI-75, Eczema Area and Severity Index Improvement by at least 75%; IGA 0/1, Investigator's Global Assessment 0 or 1; NNT, number-needed-to-treat; TCS, topical corticosteroids.

Figure 3. Dupilumab + TCS showed lower total yearly CPR than tralokinumab + TCS to achieve one additional responder.



*Sensitivity analysis with a 10% discounted price for tralokinumab.
CPR, cost-per-additional responder; iCPR, incremental CPR; EASI-75, Eczema Area and Severity Index Improvement by at least 75%; IGA 0/1, Investigator's Global Assessment 0 or 1; TCS, topical corticosteroids.

REFERENCES
1. SmPC, Dupixent® . Available from https://www.ema.europa.eu/en/documents/product-information/dupixent-epar-product-information_en.pdf.
2. SmPC, Adtralza® . Available from https://www.ema.europa.eu/en/documents/product-information/adtralza-epar-product-information_en.pdf
3. Silverberg JA-O, *et al. J Eur Acad Dermatol Venereol*. 2021. 35(9):1797–1810.
4. Thaçi D, *et al. J Dermatol Sci*. 2019. 94(2):266−275.
5. AD CAFÉ + CHRONOS CAFÉ-like Trial- Sanofi-Regeneron Pharmaceuticals Inc., Data on file.

ACKNOWLEDGEMENTS
Medical writing support was provided by Akshata Rao and Dr. Kaushik Subramanian, PhD from Sanofi.

FUNDING
This study was sponsored by Sanofi and Regeneron Pharmaceuticals, Inc.

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Poster presented at the International Society for Pharmacoeconomics and Outcomes Research Europe 2024 (ISPOR EU 2024), 17–20 November, Barcelona, Spain