A novel efficacy index for long-term therapy outcomes expressed by maintenance of EASI 75 and IGA 0,1 response in atopic dermatitis

Jonathan I. Silverberg¹, Alan Irvine², Peter Foley³, James Del Rosso⁴, Alexander Schacht⁵, Martin Dossenbach⁶, Marta Casillas⁶, Erin Johansson⁶, Gaia Gallo⁶, Linda Stein Gold⁷

¹George Washington University School of Medicine and Health Sciences, Washington, USA; ²Department of Clinical Medicine, Trinity College, Dublin, Ireland; ³The University Melbourne, Melbourne, Victoria, Australia; ⁴JDR Dermatology Research Las Vegas, NV, USA; ⁵Sanevidence GmbH, Butzbach, Germany; ⁶Eli Lilly and Company, Indianapolis, IN, USA; ⁷Henry Ford Hospital, Detroit, MI, USA

Introduction: Atopic dermatitis (AD) is a common, chronic inflammatory disease requiring long-term, continuous therapy, yet in real life, patients may need to temporarily interrupt therapy.

Objectives: To indirectly compare long-term outcomes with lebrikizumab, tralokinumab, and dupilumab, we present an exploratory efficacy index, which accounts for on-drug and off-drug combined outcomes at Week 52.

Methods: The data set consisted of patients who, after 16 weeks, responded to treatment, defined as achieving either an IGA 0,1 or EASI 75 score, and who were randomized to receive maintenance dosages of lebrikizumab 250 mg Q4W (ADvocate1; ADvocate2), tralokinumab 300 mg Q2W (ECZTRA1; ECZTRA 2), and dupilumab 300 mg QW, Q2W (SOLO-CONTINUE) or were randomized to withdraw these treatments up to Week 52. The efficacy index is based on a weighted combination of response rates at Week 52, using non-responder imputation results, for IGA 0,1 or EASI 75, for
patients who were either in the treatment continuation or the withdrawal arm. Here, we report the efficacy index, in which the weight places equal emphasis on continuing or stopping treatment, and we compare the efficacy index of tralokinumab and dupilumab with lebrikizumab.

**Results:** The efficacy index (95% CI) for lebrikizumab, tralokinumab, and dupilumab, respectively, was 53% (45%-61%), 45% (37%-53%), and 34% (28%-40%) with IGA 0,1; 63% (55%-71%), 42% (35%-49%), and 51% (45%-57%) with EASI 75. With IGA 0,1, lebrikizumab was statistically different from dupilumab; with EASI 75, lebrikizumab was statistically different from dupilumab and tralokinumab.

**Conclusions:** This novel efficacy index, which accounts for the importance of continuing or stopping therapy after Week 16, may be a useful tool to indirectly compare long-term treatment outcomes. Lebrikizumab's higher efficacy index may translate to improved long-term management of AD.

**Keywords:** Atopic dermatitis, Dupilumab, Lebrikizumab, Long-term therapy, Novel Efficacy Index.

**Acknowledgements and Funding Sources:**

- Medical writing services were provided by Molly Tomlin, MS, MEd, with Eli Lilly and Company.
- Research was funded by Eli Lilly and Company.
- Research first presented at Fall Clinical Dermatology Conference - 42nd Anniversary.

**Disclosures:**
• **JIS** - AbbVie, Asana Biosciences, Dermavant Sciences, Galderma, GlaxoSmithKline, Glenmark, Kiniksa, LEO Pharma, Lilly, Menlo Therapeutics, Novartis, Pfizer, Realm Pharma, and Regeneron-Sanofi - advisor, speaker, or consultant;
  GlaxoSmithKline – researcher.

• **AI** - AbbVie, Arena Pharmaceuticals, BenevolentAI, Eli Lilly and Company, LEO Pharma, Novartis, Pfizer, Regeneron, and Sanofi - consultant and/or advisory board member and/or is on the Data Safety Monitoring Board;
  AbbVie and Pfizer - received research grants;
  International Eczema Council - on the board of directors;
  Regeneron - provides research support;
  AbbVie, Eli Lilly and Company, Regeneron, and Sanofi Genzyme - on the speaker’s bureau.

• **PF** - AbbVie, Amgen, Bristol-Myers Squibb, Celgene, Eli Lilly, Galderma, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Sanofi, and Sun Pharma - received grants;
  AbbVie, Amgen, Argenx, Arcutis, Aslan, AstraZeneca, Boehringer Ingelheim, Botanix, Bristol Myers Squibb, Celgene, Celtaxsys, CSL, Cutanea, Dermira, Eli Lilly, Evelo, Galderma, Genentech, Geneseeq, GlaxoSmithKline, Hexima, Incyte, Janssen, Kymab, LEO Pharma, Merck, MedImmune, Novartis, Pfizer, Regeneron Pharmaceuticals, Reistone, Roche, Sanofi, Sun Pharma, Takeda, Teva, UCB, and Valeant - investigator;
AbbVie, Amgen, Aslan, Boehringer Ingelheim, Bristol-Myers Squibb, Celgene, Eli Lilly, Galderma, GlaxoSmithKline, Janssen, LEO Pharma, Mayne Pharma, Merck, Novartis, Pfizer, Sanofi, Sun Pharma, UCB, and Valeant - advisory board member;

Aslan, Bristol Myers Squibb, Eli Lilly, Galderma, GenesisCare, Hexima, Janssen, LEO Pharma, MedImmune, Mayne Pharma, Novartis, Pfizer, Roche, and UCB - consultant;

AbbVie, Eli Lilly, Gladerma, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Roche, Sun Pharma, and Sanofi - received travel grants;

AbbVie, Amgen, Celgene, Eli Lilly, Galderma, GlaxoSmithKline, Janssen, LEO Pharma, Merck, Novartis, Pfizer, Roche, Sanofi, Sun Pharma, and Valeant - received speaker’s fees or honoraria.

- **JDR** - Abbvie, Allergan, Almirall, Amgen, Arcutis, Bayer, Bausch Health (Ortho Dermatologics), Beiersdorf, Biofrontera, Biorasi, Bristol Myers Squibb, Cara, Cassiopea, Cutera, Dermavant, Dr. Reddy, EPI Health, Evommune, Ferndale, Galderma, Incyte, JEM Health, Journey, Johnson & Johnson, LaRoche Posay, LEO Pharma, Lilly, L’Oreal, Mayne Pharma, MC2 Therapeutics, Novan (EPI Health), Pfizer, Regeneron, Sanofi, Sebacia, Sol-Gel, Sun Pharma, UCB, and Vyne (Foamix) - research investigator, consultant, and/or speaker.

- **Alexander Schacht** - Sanevidence GmbH – employee;

  Eli Lilly and Company - stock holder.

- **Martin Dossenbach** – Employee - Eli Lilly and Company - may hold stock and/or stock options in the company.
• Marta Casillas – Employee - Eli Lilly and Company - may hold stock and/or stock options in the company.

• Erin Johansson – Employee - Eli Lilly and Company - may hold stock and/or stock options in the company.

• Gaia Gallo – Employee - Eli Lilly and Company - may hold stock and/or stock options in the company.

• LSG - AbbVie, Amgen, Arctis, Bristol Myers Squibb, Dermavant, Eli Lilly and Company, Galderma, Incyte Corporation, Janssen, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi, and UCB Pharma - investigator and/or consultant and/or speaker.