Characterization of atopic dermatitis medication use before and during pregnancy in the United States

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Introduction & Objectives: There are limited data on peri-partum use of atopic dermatitis (AD) therapies, including for dupilumab, the first AD biologic drug approved by the United States (US) Food and Drug Administration. We characterized AD medication (systemic therapy or phototherapy) use among pregnant individuals.

Materials & Methods: Individuals from two US-based commercial health insurance claims databases, the Optum Research Database and the Healthcare Integrated Research Database, were eligible for inclusion if they met the following criteria: 1) start of pregnancy (i.e., estimated date of last menstrual period [LMP]) 01 April 2017 – 31 October 2023; 2) ≥ one AD diagnosis code; 3) continuous health plan enrollment for ≥6 months prior to and including LMP (baseline period); 4) age 18–49 years at LMP; and 5) an additional indicator for AD beginning from up to one year prior to LMP through end of pregnancy: receipt of systemic or topical AD therapy; use of phototherapy; or receipt of a second AD diagnosis. We included the first qualifying pregnancy per person. AD medication use during pregnancy was assessed beginning at LMP minus 5x the therapy half-life (e.g., LMP – 10 weeks for dupilumab) through the end of pregnancy (earlier of a pregnancy outcome [e.g., miscarriage, live birth] or 42 weeks after LMP). We describe characteristics and medication use among those: 1) exposed to dupilumab (dupilumab cohort), 2) exposed to phototherapy or systemic AD therapy other than dupilumab (other systemic therapy cohort), and 3) not exposed to systemic AD therapy or phototherapy (unexposed cohort), which were hierarchically defined based on therapy use any time during pregnancy.

Results: We identified 19,643 pregnant individuals with AD. Of these, 419 (2%) were included in the dupilumab cohort, 2,639 (13%) in the other systemic therapy cohort, and 6,807 (35%) in the unexposed cohort, yielding 9,865 individuals; the remaining 9,778 were excluded due to having a single AD diagnosis. While the majority (56-61%) in all cohorts were age 25-34 years at LMP, more individuals in the dupilumab cohort were age 18-24 years (23%) compared to those in the other systemic therapy (14%) or unexposed cohorts (12%). Among the dupilumab cohort, 90% used dupilumab in the baseline period prior to pregnancy; 30% had exposure to other systemic therapy prior to pregnancy. Very few individuals (<1%) had baseline exposure to dupilumab prior to pregnancy in either the other systemic therapy or the unexposed cohorts. More individuals in the other systemic therapy cohort had exposure to other systemic therapy (50%) prior to pregnancy than in the unexposed cohort (15%); in both cohorts, oral or parenteral corticosteroids accounted for >97% of other systemic therapies used. Dupilumab use among pregnant individuals increased over time, from 28 pregnancies in 2018 to 108 in 2022 (+286%); use of other systemic therapy increased slightly (<23%) over this time (Figure 1). Among the dupilumab cohort, use of any systemic AD therapy or phototherapy became less common over the course of
pregnancy (>98%, 45%, and 21% in the first, second and third trimesters, respectively), which is aligned with the findings of general AD pregnant populations in the literature.

**Conclusion:** Among individuals with AD, a minority used systemic AD therapy or phototherapy prior to and during pregnancy. However, use of dupilumab is observed to have grown in this population. Ongoing studies are analyzing safety outcomes of dupilumab use during pregnancy.

**Figure 1. Number and Proportion of all Pregnancies among Individuals with Atopic Dermatitis Exposed to Dupilumab and Other Systemic Therapy or Phototherapy by Year of Pregnancy Start, 2018 – 2022.**

![Bar chart showing number of pregnancies and proportion exposed to dupilumab or other systemic therapy or phototherapy by year of pregnancy start from 2018 to 2022.]

**Keywords (up to 5):** Pregnancy, medication use, atopic dermatitis, dupilumab

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