Red in the face: Dupilumab facial dermatitis in a 12 year old boy

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Background: Dupilumab is increasingly used for pediatric patients with severe atopic dermatitis (AD). Recently, reports emerged of dupilumab-treated patients experiencing a paradoxical, mostly asymptomatic head and neck erythema with a heterogeneous clinical and histopathologic pattern distinct from AD. Dupilumab was only recently approved for 12-17 year old children. Although the drug is well-tolerated among adolescents and adults, physicians must be aware of emerging side effects that were not apparent in clinical trials. We report a case of dupilumab facial redness in a prepubertal patient who started the medication at 12 years old.

Objective: To provide the first characterization of a pediatric case of dupilumab facial redness in AD.

Methods: The patient was evaluated and treated at a pediatric dermatology clinic. Standardized questionnaires and AD severity scoring tools were used to monitor response to dupilumab: Peak Pruritis Numerical Rating Scale (PPNRS), Child Dermatology Life Quality Index (CDLQI), Family Dermatology Life Quality Index (FDLQI), Eczema Assessment and Severity Index (EASI), and Investigator Global Assessment scale for AD (IGA). A literature review was performed to characterize this phenomenon in the pediatric population using combinations of the following search terms in PubMed and Google Scholar: “dupilumab”, “Dupixent”, “facial dermatitis”, “facial erythema”, “redness”, “skin reaction”, “rash”, “neck”, and “pediatric”.

Results: The literature search revealed no case reports of pediatric dupilumab facial redness. One retrospective review noted 3 patients under 18 years old thought to have dupilumab facial redness, out of 9 total patients under 18 years old. The authors did not characterize the diagnosis, rash, onset, evaluation, treatment, or response in these patients. Thus, our report is the first to present a detailed history, pictures, and discussion of evaluation and treatment in a pediatric patient.
Case report: An 11 year 9 month old Caucasian male with severe AD since infancy presented to dermatology clinic. He had mild asthma and environmental allergies. He experienced social stress due to poor skin appearance, fatigue from poor sleep and chronic itching, and significant family distress from his uncontrolled symptoms. On baseline physical examination, he had 85% body surface area affected, with marked erythema, papulation, excoriations, and lichenification over the whole body including the

face and neck. Due to his severe AD and prior treatment failure (topical corticosteroids, topical calcineurin inhibitors, and phototherapy), he was started on dupilumab. He received a loading dose of 400 mg subcutaneously and maintenance dosing of 200 mg every 2 weeks. At that time, his AD severity scoring was EASI 36 and IGA 3, and his patient reported outcome scores were PPNRS 5, CDLQI 7, and FDLQI 14. His scores rapidly improved by 1 month and by 10 weeks he was nearly clear, when his scores were BSA 6%, EASI 2, IGA 1, PPNRS 1, CDLQI 0, FDLQI 6.

However, at 10 weeks his physical exam was remarkable for a new onset confluent, well-demarcated erythematous rash with fine non-greasy scaling without excoriations over his face. He was unaware of the rash and denied itching or pain in the area. He had no recent infections or systemic symptoms. He was prepubertal, with no facial acneiform lesions, no axillary hair, Tanner 1 pubic hair, and prepubertal testes size. He never experienced conjunctivitis, eye irritation, or other side effects aside from pain during injection.

A diagnosis of dupilumab facial redness was made. We did not biopsy the new rash because of the risk of scarring and young age. The patient was treated with bland emollient for 1 month (Vaseline, Eucerin cream) and continued on his regular dosing of dupilumab. At follow-up 1 month later, his facial redness had significantly improved, with residual patches of pink erythema, scale, and fine thickening on upper lip, lateral nose, eyebrows, and glabella, in a distribution similar to that of seborrheic dermatitis. Due to reports of Malassezia hypersensitivity causing similar rash and responding to antifungals, we performed a KOH test of the face which was negative. He was advised to continue emollient use to the face.

Conclusion: With increasing use of dupilumab in pediatric patients, physicians should be aware of the side effect of new-onset, well-demarcated facial erythema without pruritis, often within the first two months of therapy. Physicians should consider unique aspects of pediatric patients, such as the pubertal status, in assessing the likelihood of Malassezia as a cause. Consider bland emollient for initial therapy or antifungals if KOH test is positive. Dupilumab facial redness may not have been apparent in clinical trials as AD scoring tools may underreport the pattern of well-demarcated facial erythema without excoriation, papulation, lichenification and large BSA.