Case series on real-world experience of biologics in the management of atopic dermatitis in paediatric population at King's College Hospital, London

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Introduction: Atopic dermatitis (AD) is a chronic, relapsing, inflammatory, pruritic skin disease. More than 50% of cases begin during the first year of life and at least 80% of affected children have onset before the age of 5. A bimodal distribution is seen, with the condition improving in late childhood and only a minority of cases persisting in adolescence and adulthood.

The widespread and persistent dermatitis and severe pruritus have a substantial impact on sleep and quality of life for both affected children and their parents. Childhood depression and anxiety can lead to negative parenting behaviours, affecting both children and parental well-being. In some cases, the dermatitis is complicated by secondary bacterial or viral infections.

New generation biologics and JAK inhibitors have emerged as a promising treatment option for moderate to severe cases of atopic dermatitis and transformed the face of dermatology.

Objectives: This abstract presents a review of our experience in prescribing dupilumab and upadacitinib, in the management of AD among paediatric patients.

In this case series, we share our experience of using these new medications in managing paediatric atopic dermatitis. The majority of these patients had failed treatment with topical steroids, calcineurin inhibitors, and systemic immunosuppressants, or they have contraindications for prescribing immunosuppressors currently used as first step systemic treatment, e.g. patients with inflammatory bowel disease or liver transplant patients.
**Methods:** Over the last 18 months, we treated a total of 9 paediatric patients (7 Dupilumab and 2 Upadacitinib) with moderate to severe AD using these medications.

This retrospective study encompasses a cohort of paediatric patients diagnosed with moderate to severe AD, who received treatment with dupilumab or upadacitinib within the specified timeframe at our institution. Each patient's medical records were reviewed to gather demographic information, disease characteristics, treatment regimens, adverse events, and treatment responses.

**Results:** Following initiation of treatment with dupilumab or upadacitinib, significant improvements in disease severity were observed across the patient cohort. Objective assessments utilising standardised clinical scoring tools revealed marked reductions in disease activity scores post-treatment, including the Eczema Area and Severity Index (EASI), Dermatology quality of life questionnaire (DLQI) and the Investigator’s Global Assessment (IGA).

Our findings suggest that biologics significantly improved the symptoms and quality of life in our paediatric severe eczema patients. Most patients experienced a rapid reduction in pruritus, erythema, and excoriation within a few weeks of starting biologic therapy. Additionally, we observed a decrease in the frequency of flares and the need for oral corticosteroids in our patients. Most of the patients on Dupilumab were prescribed prophylactic Hypermellose drops and VitaPOS eye ointment. Notably, Dupilumab associated conjunctivitis was not reported in any of the cases.

**Conclusion:** Overall, our case series suggests that biologic agents are effective and well-tolerated in the management of moderate to severe AD in the paediatric population.
In our experience, we have seen a reduction in pruritus, improvement in sleep quality, and overall better control of the disease with the use of dupilumab and upadacitinib in paediatric patients.

These novel medications not only provide relief from the symptoms of atopic dermatitis but so far, offer a safe and effective long-term treatment option for children who have failed to respond to conventional therapies.

Our case series contributes valuable insights into the real-world utilisation of biologic agents, specifically dupilumab and upadacitinib, in the management of severe AD.

**Keywords:** Paediatric, moderate-to-severe-eczema, atopic-dermatitis, conjunctivitis