

Disparity in disease severity and treatment utilization for Atopic Dermatitis (AD) patients in the US

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Introduction

- Atopic Dermatitis (AD) is a chronic inflammatory skin disease which affects ~10% of US population.
- The pathogenesis of AD is complex with varying presentation by age and race. The disease can exist from mild to severe form and is often characterized by relapsing flare-ups.
- AD is more common in pediatric population and in African Americans. Although, treatment of AD primarily involves managing symptoms, but the treatment choices and prescription pattern differs according to age and race.
- Understanding the real-world disease presentation and treatment utilization will thus aid in identifying the disparities and bridge the gap between clinical practice and care management.

Objective

To explore the racial and age-related disparity in the disease severity and drug utilization in AD patients

Method

- Optum® de-identified Market Clarity Dataset, which links medical claims with EHR data was used to identify patients who were diagnosed with AD between 1st Jan 2017 to 31st Dec 2020
- Patients with continuously eligible for 3 years pre and 12 months post-index were considered. Patients who had been previously diagnosed with AD were excluded
- AD patients and their disease severity terms were extracted from the physician's notes using Natural Language Processing (NLP)
- Patients ≥ 2 physician's notes which were 12 months apart and the first note falling in the study period with a positive mention of AD were considered for the study.
- Disease severity terms were analyzed, and similar terms were categorized into three groups as mild, moderate and severe.

- Based on the disease severity at the time of diagnosis and 12 months post index, racial and age-related disparities were evaluated
- For understanding drug utilization by AD patients, 5 different drug categories (Topical corticosteroids [TCs], Topical calcineurin Inhibitors [TCIs], Systemic steroids [SS], Immunosuppressant [IS] and Monoclonal antibody [MA] were considered
- The drug prescription pattern, discontinuation and restart trend were also analyzed by age and race. Discontinuation was defined as ≥6 months gap between two prescription
- Kaplan-Meier survival analysis curves were used to estimate the time to discontinuation and restart after discontinuation of AD treatment

Results

- Of the 2,553 AD patients, 68% patients were pediatric (age ≤ 18 years). 19% patients self-identified as African American and 58% as whites
- The pediatric patients were more affected by AD but presented a milder form compared to adults in both baseline and 12 months post follow-up (mild: 69% vs 49% at baseline, $p < 0.0001$; 72% vs 50% at follow-up, $p < 0.0001$) [Fig 1]
- African Americans showed more severe form of AD as compared to whites in baseline and 12 months post follow up (severe: 39% vs 25% at baseline, $p < 0.0001$; 42% vs 22% at follow-up, $p < 0.0001$) [Fig 2]
- Out of the 5 drug categories, TCs (62%) were most prescribed across age and race followed by systemic steroids (32%). Triamcinolone (28%) and Hydrocortisone (11%) were most prescribed TCs, and Prednisolone (19%) was the most prescribed systemic steroid [Fig 3]
- Pediatric patients were more likely to discontinue AD treatment than Adults within 2.5 years. At 6 months, 30% pediatric patients discontinued treatment compared to 20% adult [Fig 4]
- Whites compared to African American were more likely to discontinue AD treatment within 2 years but showed similar discontinuation pattern in longer terms [Fig 5]

Fig 1: % of patients with mild, moderate and severe form of AD by Age

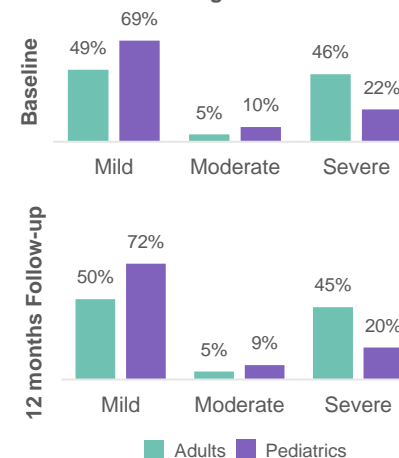


Fig 2: % of patients with mild, moderate and severe form of AD by Race

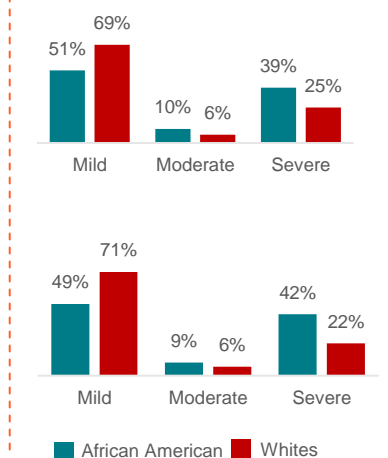


Fig 3: % of patients per drug category by Age and Race at baseline

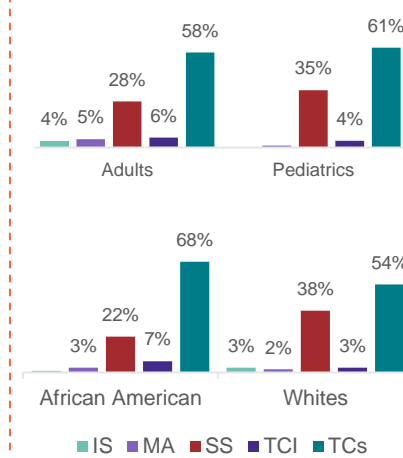


Fig 4: Kaplan-Meier graph for AD discontinuation by Age

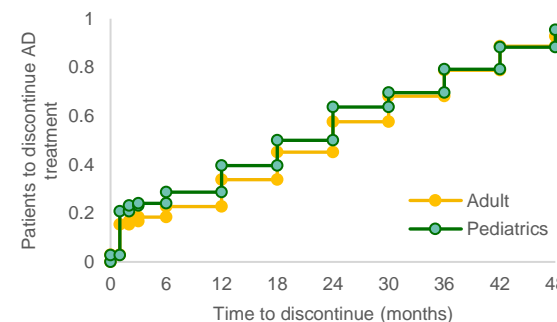
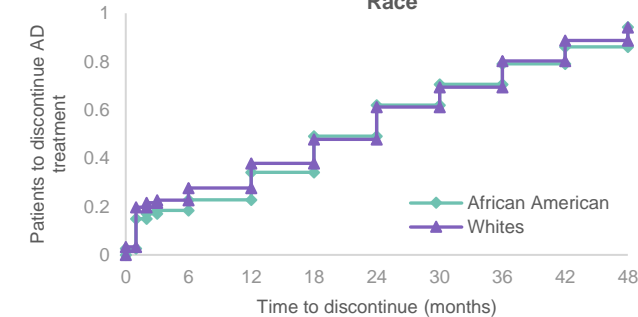


Fig 5: Kaplan-Meier graph for AD discontinuation by Race



Conclusion & Limitations

- Atopic Dermatitis appeared to be more prevalent in children less than 18 years of age and in African American population.
- No major disparity in the drug utilization can not be found within age and race; TCs are the most prescribed medicine which is the first line of therapy for AD
- Pediatrics and whites are likely to discontinue AD treatment sooner as they present with mild form of AD compared to adults and African Americans