Evaluation of treatment and switching patterns for Dry Eye Disease medications using linked EHR and Claims data

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BACKGROUND

Dry Eye Disease (DED) is a multifactorial chronic condition of the tear film and ocular surface impacting the quality of life and visual comfort for millions of individuals. Current DED medications require consistent use for at least 3 months or more for symptomatic relief. Previous reports suggest a high discontinuation rate, implying suboptimal real-world efficacy for long term DED management.

Among the pharmacological interventions available for DED management, three prescription treatments are commonly used in clinical practice:

- Restasis® (cyclosporine ophthalmic emulsion 0.05%
- Xiidra® (lifitegrast ophthalmic solution 5%)
- Cequa™ (cyclosporine ophthalmic solution 0.09%)

METHODS

- This retrospective cohort study used the American Academy of Ophthalmology IRIS® Registry (Intelligent Research in Sight) linked with Komodo Health claims data between January 2017 – June 2022.
- Study examined treatment patterns, switching and discontinuation for commonly prescribed DED medications viz. Restasis®, Xiidra® and Cequa™.
- The first pharmacy claim for a medication of interest between January 2018 and June 2021 defined the index date.
- Treatment switch was defined as the start of a new DED medication type within 60 days after the last claim for the index DED medication plus its days' supply.
- Discontinuation of the index medication was defined as a gap of ≥60 days between the end of the days' supply and next refill of the index medication or a treatment switch prior to discontinuing the index medication.

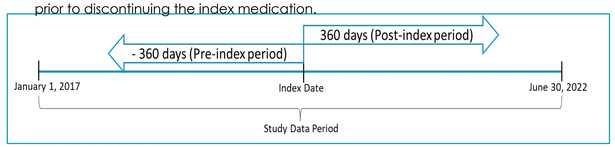

Figure 1. Study Design

RESULTS

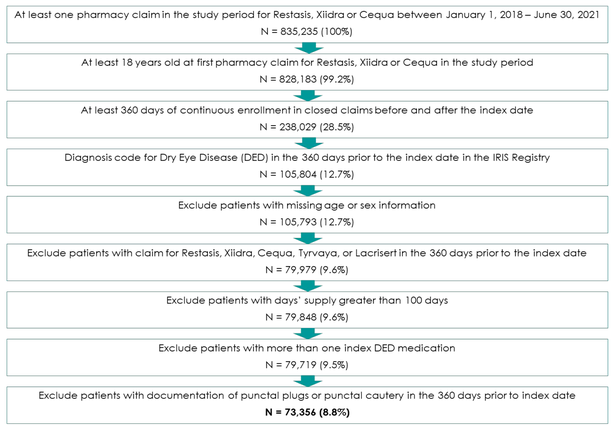

Figure 2. Study Attrition Diagram

Results

- On average, patients prescribed Restasis were about 5 years older than those prescribed other DED medications.
- The majority of patients across all three treatments were female (~80%)
- The majority of patients across all three treatments had an ICD-10 code suggesting aqueous deficient DED

Table 1. Baseline Characteristics

	Restasis N=47,859 (65.2%)	Xiidra N=23,706 (32.3%)	Cequa N=1,791 (2.4%)
Age			
Age (years) Mean ± SD	61.7 ± 13.7	56.6 ± 13.1	56.7 ± 13.6
Sex			
Female	80.9%	80.3%	79.7%
Male	19.1%	19.7%	20.3%
Race			
White or Caucasian	61.2%	64.1%	64.9%
Black or African American	7.0%	5.7%	5.2%
Asian	5.4%	4.7%	4.7%
Other races	3.2%	2.5%	1.6%
Unknown	23.2%	22.9%	23.6%
Ethnicity			
Hispanic	11.8%	9.2%	7.4%
Non-Hispanic	59.0%	60.1%	59.2%
Unknown	29.2%	30.7%	33.4%
Insurance / Payer Type			
Medicare	17.0%	10.5%	10.1%
Medicare Advantage	13.3%	16.9%	8.0%
Medicaid	7.0%	7.0%	3.6%
Commercial	47.8%	60.7%	64.3%
Other/Unknown	15.0%	14.9%	14.1%
Mechanism of DED			
Evaporative	0.4%	0.6%	1.1%
Evaporative Mix	4.2%	4.7%	8.9%
Aqueous Deficient	85.9%	84.8%	77.9%
Multiple	7.0%	7.8%	9.0%
Other	2.4%	2.1%	3.0%

RESULTS

- Mean time on therapy was similar for Restasis [95.8 days(SD 76.9)] and Xiidra [90.5 days (SD78.8)]and somewhat lower for Cequa [77.5 days(SD66.8)].
- For all three medications over half of patients only filled a single script.

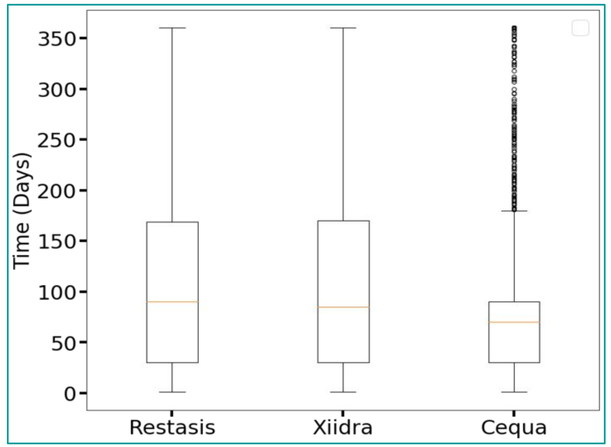

Figure 3. Days on index therapy

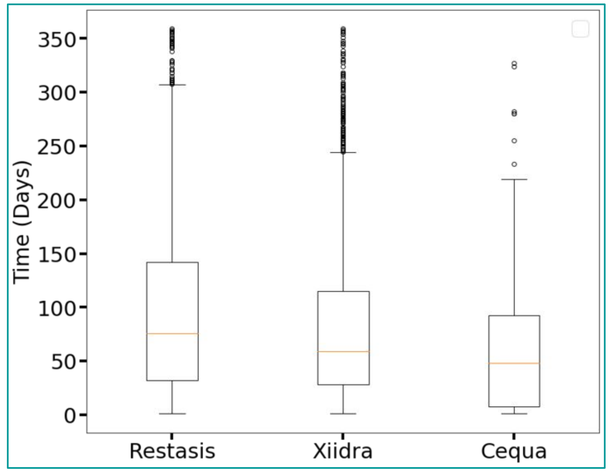

Figure 4. Days until therapy switch

RESULTS

- Switching was relatively uncommon; only 2.8% of Restasis, 6.5% of Xiidra, and 7.8% of Cequa patients switched to a different DED medication during the study period.

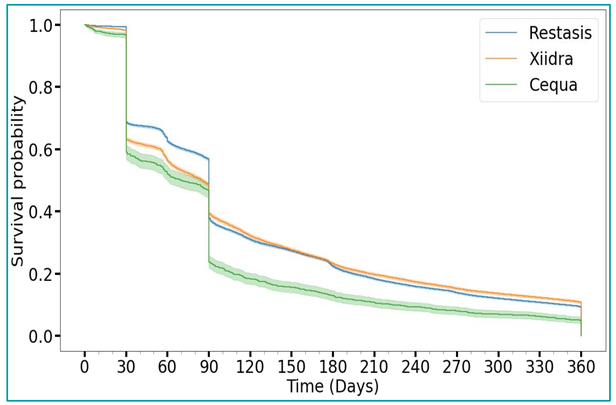

Figure 5. Time to Discontinuation

CONCLUSIONS

This study investigated the real world utilization patterns of 3 common DED medications

- Consistent with other clinical literature, patients in all cohorts experienced a high rate of discontinuation.
- In comparison to a previous real world study, our cohort had a higher discontinuation rate of both cyclosporine 0.05% (70.8% vs. 90.7%) and lifitegrast (64.4% vs. 89.2%).
- However the current study had a shorter discontinuation window (60 days) compared to 120 and 90 days for cyclosporine and lifitegrast, respectively, in the previous study.
- Despite the fact that the clinical literature suggests most patients have a combination of aqueous deficient and evaporative DED, the majority of patients in this study we classified as aqueous deficient. The reasons for this is unknown, but could reflect the mechanism of action of these medications.
- Further research is warranted to elucidate reasons for non-adherence to prescribed therapy, including lack of efficacy and inappropriate usage of single use vials.

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