Persistence of signs and symptoms of adenoviral conjunctivitis (Ad-Cs) after viral clearance

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PURPOSE

To examine whether signs and symptoms of Ad-Cs persist after viral clearance in patients with qPCR confirmed Ad-Cs at baseline.

INTRODUCTION

Clinicians commonly use patient-reported symptoms (ocular discomfort, tearing, eyelid swelling, photophobia, and decreased vision) as well as clinical signs (bulbar conjunctival redness, chemosis, follicles, and serous discharge) to diagnose and manage adenoviral conjunctivitis (Ad-Cs).

The presence of signs and symptoms over the course of Ad-Cs may not be an accurate predictor of viral clearance.

METHODS

- The Reducing Adenoviral Patient Infected Days (RAPID) study is a double-masked, pilot randomized trial to compare the efficacy of a single, in-office administration of 5% povidone-iodine (PVP-I) to artificial tears (AT).
- Institutional review board approval was obtained by each study site and the Coordinating Center at Washington University in St. Louis, MO.
- Eligible participants were ≥ 18 years of age with duration of "red eye" symptoms in one or both eyes for 4 days or less at the time of presentation.
- At baseline and follow-up days 1-2, 4, 7, 14 and 21, the following measures were obtained:
  1. masked clinician-graded signs
     - clinicians graded 7 ocular signs: serous discharge, bulbar redness, mucoid discharge, eyelid edema, eyelash matting, bulbar edema, follicles on a scale from "0" (absent) to "4" (severe)

  2. masked participant-reported symptoms
     - participants rated "bothersomeness" of 10 symptoms: tearing, eyelash matting, burning, itching, gritty/sandy, eyelid swelling, redness, blurred vision, sensitivity to light and overall discomfort on a scale of "0" (not at all bothersome) to "10" (very bothersome)

  3. conjunctival swab for qPCR analysis to measure viral titers
- At each visit, we calculated the proportion of participants who continued to have signs and symptoms of Ad-Cs in the absence of detectable virus by qPCR analysis.

RESULTS

Patient sample:
Of 212 participants screened, 28 with Ad-Cs confirmed by qPCR were enrolled, 17 of 28 completed the day 21 visit and are included in this report.

To determine if signs and symptoms persisted after viral titers became undetectable, symptoms and clinical signs were classified as "present" at each visit when symptom grade was greater than "1" on a scale from "0" to "10" and when clinical grade was greater than "0" on a scale from "0" to "4".

Viral Titers at Day 21
At day 21, none of the 17 participants had detectable viral titers by qPCR analysis.

Masked Participant-Reported Symptoms at Day 21
Despite the absence of detectable viral titers at day 21, the following symptoms were reported by participants: 41% (7 of 17) blurred vision, 29% (5 of 17) overall discomfort, 24% (4 of 17) ocular redness, 24 % (4 of 17) sensitivity to light, 18% (3 of 17) grittiness, 12% (2 of 17) eyelash matting, and 6% (1 of 17) tearing, stinging/burning, and eyelid swelling. No participants reported itching. (Figure 1)

FIGURE 1
Participant reported symptoms at 21-day visit when the viral titers were undetectable (n=17)

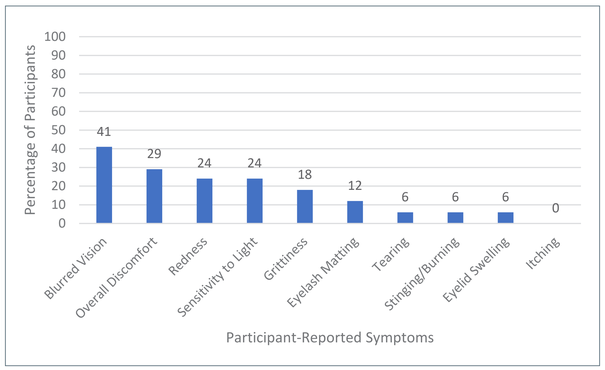
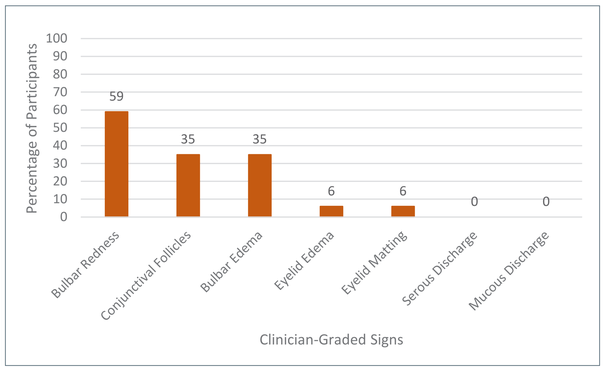


FIGURE 2
Clinician graded signs at 21-day visit when viral titers were undetectable (n=17)



Masked Clinician-Graded Signs at Day 21
Despite the absence of detectable viral titers at the day 21 visit, masked clinicians graded the presence of Ad-Cs signs: bulbar redness in 59% (10 of 17), 35% (6 of 17) conjunctival follicles, 35% (6 of 17) bulbar edema, 6% (1 of 17) eyelid edema, and 6% (1 of 17) eyelid matting in patients without detectable virus. No participants had serous or mucous discharge. (Figure 2)

CONCLUSIONS

After 21 days from baseline, the persistence of classic signs and symptoms of Ad-Cs is unlikely to be indicative of the presence of viral titers or infectivity. By day 21, no patient had detectable viral titers and no patient had serous or mucous discharge. However, many patients continued to have other signs and symptoms of Ad-Cs at day 21. Of all the signs/symptoms typically used clinically to aid in the diagnosis of Ad-Cs, it appears that the disappearance of serous discharge most closely correlates with the viral clearance, however, further investigation is warranted. To determine clearance of viral titers and non-infectivity, and objective assessment of viral titers by real-time qPCR could be useful.

ACKNOWLEDGEMENTS

Len Haertter, BA, CCRP, Clinical Research Specialist, Department of Ophthalmology at Washington University

Data Safety Monitoring Committee: James Chodosh, MD, MPH, Thomas Freddo, OD, PhD, FAAO, Thomas Lietman, MD, Sally Atherton, PhD, William Mathers, MD (retired) 10/2015 – 10/2016

Bojana Rodic-Polic, PhD, DiaSorin Molecular LLC (Cypress, CA) for loaning the study a Liaison MDX Instrument and donating reagents for qPCR analysis

Gregory A. Storch, MD, Special Projects Laboratory, Department of Pediatrics, Washington University, St. Louis, Missouri, USA

FUNDING

This work was supported by the National Institutes of Health (EY023633-01A1, P30EY002687, EY01792) and an unrestricted grant from Research to Prevent Blindness.

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