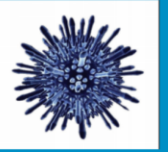




Correlation of Signs and Symptoms with Viral Load in Patients with qPCR Confirmed Adenoviral Conjunctivitis over 21 Days: Reducing Adenoviral Patient Infected Days (RAPID) Study



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Introduction and Purpose

- Adenoviral conjunctivitis (Ad-Cs) is a highly contagious eye infection that has significant morbidity and economic impact. Determining return to work or school can be challenging for clinicians.
- The Reducing Adenoviral Patient Infected Days (RAPID) study is a double-masked randomized pilot study examining the safety and efficacy of a single administration of ophthalmic 5% Povidone-Iodine (PVP-I) for the treatment of Ad-Cs.
- The purpose of this report is to examine the correlation between severity of signs/symptoms and viral load during 21 days in patients with confirmed Ad-Cs by quantitative polymerase chain reaction (qPCR).

Results

- Of the 56 participants who were eligible and randomized, this report is based on the 28 participants with qPCR confirmed Ad-Cs with follow-up.
- Correlation coefficients for 10 participant reported symptoms is shown in Table 1 below.
- Correlation coefficients for 9 clinician graded signs is shown in Table 2 below.

Table 1. Correlation of viral load and participant-reported symptoms from Day 0, 1-2, 4, 7, 14 and 21.

Patient reported symptom	Correlation	p-value
Tearing/Watering	0.8604	<0.001
Eyelash matting	0.8058	0.0245
Redness	0.7074	0.0021
Eyelid swelling	0.5832	0.0181
Overall discomfort	0.5364	0.0123
Burning/Stinging	0.3527	0.1676
Gritty sensation	0.2019	0.4468
Light sensitivity	0.1714	0.4919
Blurred vision	0.1575	0.5262
Itching	-0.0933	0.7219

Table 2. Correlation of viral load and clinician graded signs from Day 1, 1-2, 4, 7, 14 and 21.

Clinician graded clinical sign	Correlation	p-value
Serous discharge	0.8732	<0.0001
Bulbar redness	0.5975	0.0107
Eyelid edema	0.4852	0.0250
Eyelash matting	0.3638	0.1811
Bulbar edema	0.2270	0.3716
Conjunctival follicular response	0.2131	0.5100
Any node involvement	0.1528	0.5638
Total zones of corneal staining	0.05614	0.8178
LogMAR vision	-0.04423	0.8419

Discussion

- This is among the first reports correlating patient reported symptoms and clinician graded signs with viral load in patients with qPCR confirmed Ad-Cs over a 21 day period.
- 5 of the 10 symptoms and 3 of the 9 clinician graded signs significantly improved with reduced qPCR viral titers.
- Persistence of symptoms/signs may be due to the inflammatory cascade that did not resolve as quickly as the qPCR adenoviral load.
- Slower resolution of symptoms and signs as viral load became undetectable may explain why clinicians have difficulty recommending return to work or school to prevent further spread of this highly contagious conjunctivitis.

Methods

Sample

- Individuals with acute red eye(s) were enrolled in the RAPID study. The study was approved by Washington University's IRB in St. Louis and at each of the 9 local IRBs.
- Eligibility for randomization included informed consent, age ≥ 18, symptoms ≤ 4 days, and a positive AdenoPlus (Quidel, San Diego CA) point-of-care immunoassay.
- Of 212 participants enrolled, 56 were eligible and randomized to a single, in-office administration of either 5% povidone-iodine (PVP-I) or artificial tears (AT).

Measures

- Participants had a baseline exam and follow-up visits at days 1-2, 4, 7, 14 and 21.
- At each visit, a masked clinician administered a 10-item symptom survey, graded clinical signs, and obtained a conjunctival swab for qPCR analysis.
- Participants rated symptoms on a scale of 0 (not bothersome) to 10 (very bothersome).
- Masked clinicians rated clinical signs of the first affected eye on a scale of 0 (absent) to 4 (severe).

Statistical Analysis

- A joint model of two correlated mixed effects models was used to determine the correlation between viral load over the 21-day follow-up period with signs and symptoms of qPCR confirmed Ad-Cs.

Conclusions and Acknowledgements

As viral load decreased in participants with qPCR confirmed Ad-Cs, there was a significant correlation in reduction of patient reported-symptoms (tearing/watering, eyelash matting, eyelid swelling, redness, overall discomfort) and clinician-graded signs (serous discharge, lid edema, bulbar redness).

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