

TREATMENT OUTCOMES OF CORNEAL ULCERS USING LEVOFLOXACIN HYDRATE 1.5% OPHTHALMIC SOLUTION WITH ADJUVANT ORAL CIPROFLOXACIN: A TREATMENT STRATEGY

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INTRODUCTION

Infectious keratitis is a leading cause of global blindness¹ and is often treated with **fluoroquinolones**.

Study Objective: To evaluate the efficacy of fluoroquinolone ophthalmic medication and adjuvant oral ciprofloxacin when indicated in the treatment of infective corneal ulcers.

METHODOLOGY

Prospective Study: The recruited subjects were patients seen in a hospital eye centre over one year.

Inclusion Criteria:

- Age > 7 years old
- First episode of infection with clinical picture consistent with bacterial keratitis
- Single or multiple small corneal ulcers with diameter 3mm or less
- With or without history of contact lens (CL) wear

Exclusion Criteria:

- Ocular infection suspicious of fungal infection or mixed infection
- Allergic conjunctivitis
- Clinical history of penetrating eye injury
- History of drug allergy to fluoroquinolones

Study Drug: The study drug is Levofloxacin Hydrate (LVFX) 1.5% ophthalmic solution.

All patients recruited had detailed ophthalmic history taken and a full eye assessment.

Diagnosis of bacterial corneal infection was established by clinical history and presentation of corneal epithelial and stromal infiltrates.

¹Pascolini, D. and Mariotti, S., 2011. Global estimates of visual impairment: 2010. British Journal of Ophthalmology, 96(5), pp.614-618.

Follow up period consisted first day of assessment, followed by 3rd, 5th and 7th day after LVFX.

Treatment Regime:

First 3 days: Hourly

3rd to 5th day: 2 hourly

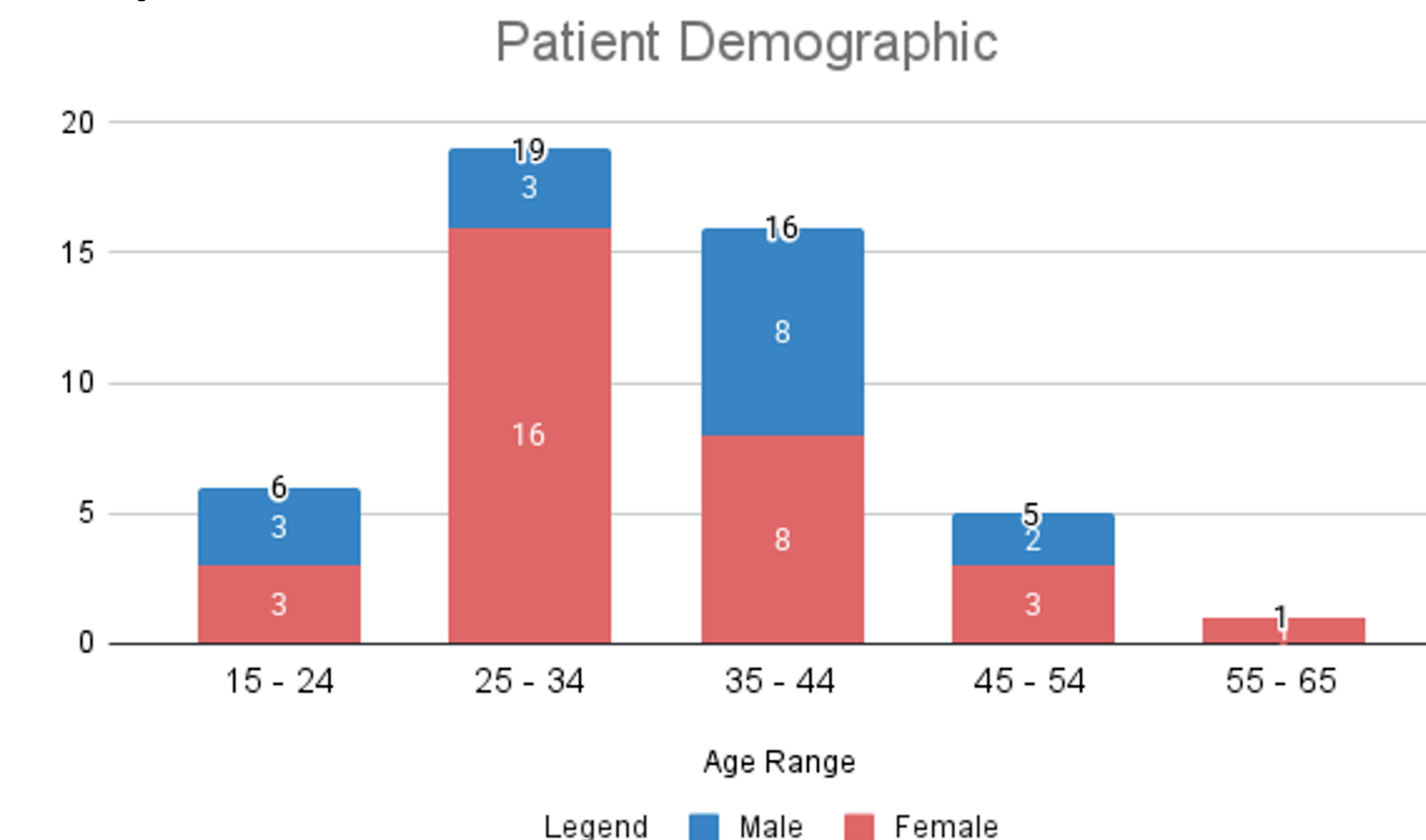
5th to 7th day: 3 hourly

Adjuvant Therapy: oral ciprofloxacin antibiotic (500 mg) BD for 5 days if the cornea ulcer was central or paracentral in location or multiple in nature.

Test Variables

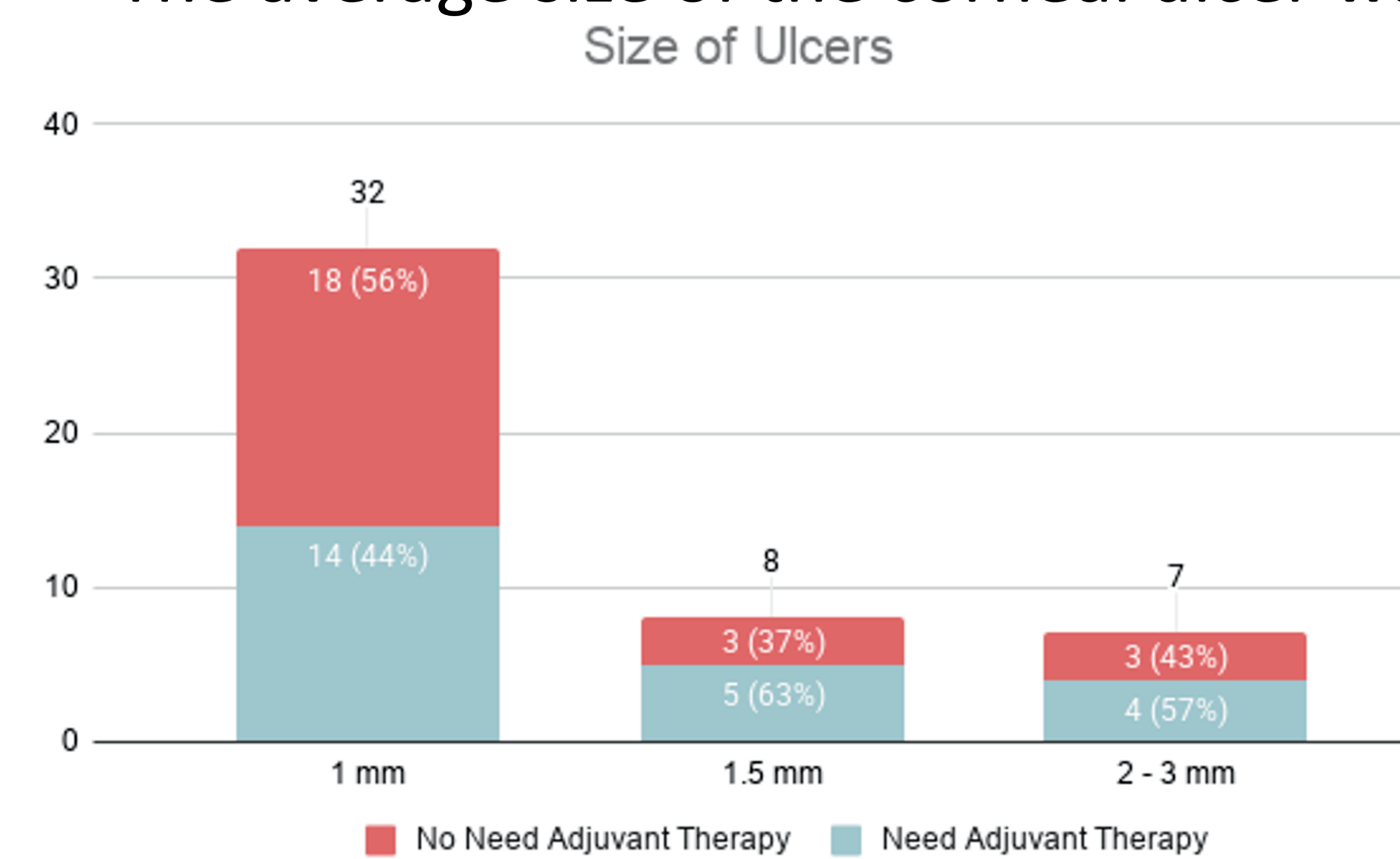
- Anterior segment imaging of the corneal lesion for clinical documentation and follow up.
- Time duration to full recovery
- Visual acuity of the patient pre-treatment and after full recovery
- Record of symptoms reduction
- Adverse drug reactions

Full recovery of the corneal ulcer was defined as **full healing of the epithelium with no fluorescein staining** and the **complete resolution of corneal infiltrates**.



RESULTS

- 16 (34%) males and 31 (66%) females.
- 40 subjects (85%) had contact lens (CL) related corneal infection.
- 23 subjects (49%) were given adjuvant therapy (oral ciprofloxacin 500mg BD for 5 days). 21 subjects (91%) were CL related.
- 42 subjects (89%) presented with one ulcer, 20 (48%) required adjuvant therapy.
- 5 subjects presented with 2 or 3 ulcers, 3 required adjuvant therapy.
- The average size of the corneal ulcer was 1.3mm in the entire cohort.

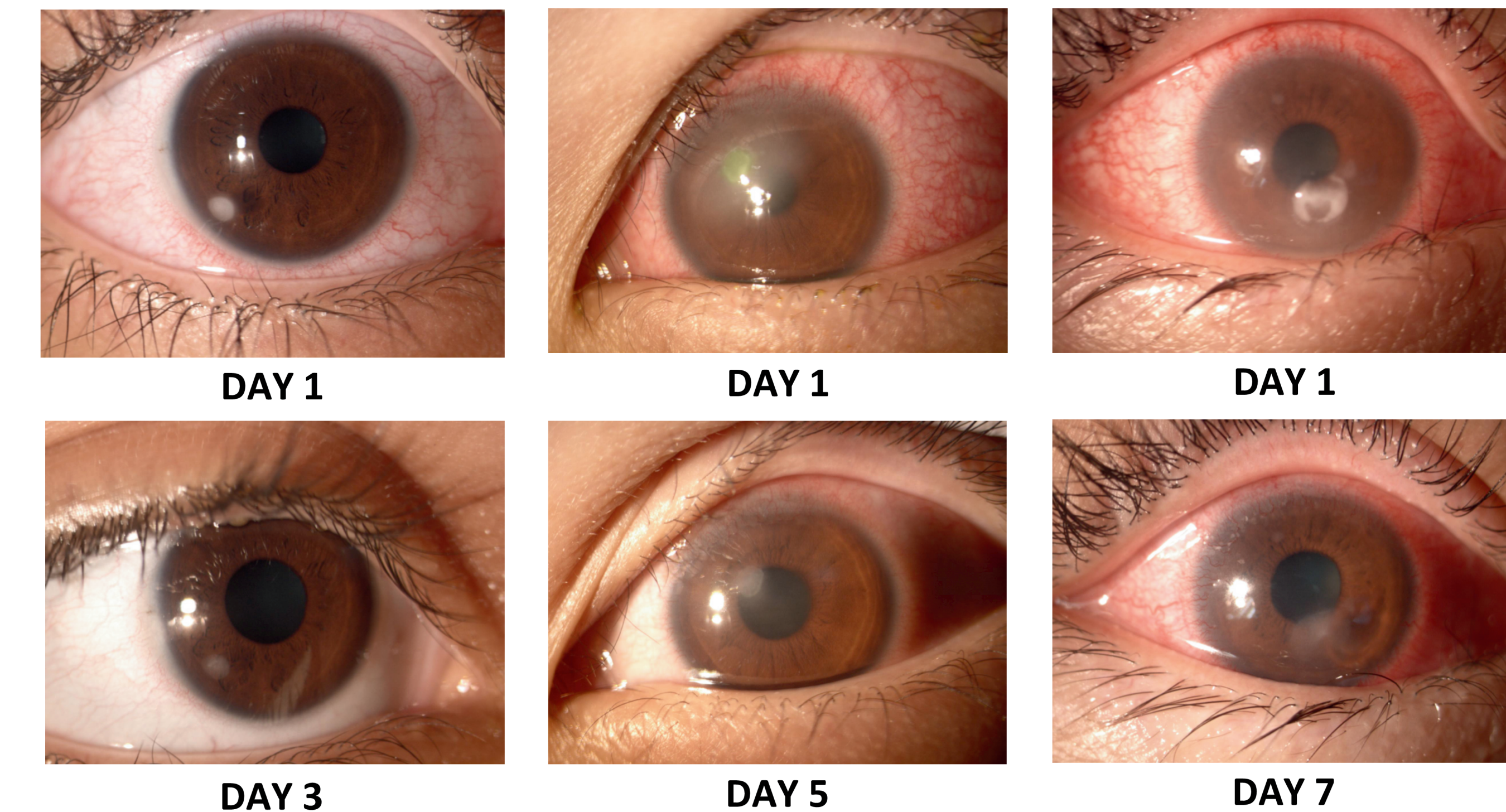


Duration of treatment: The average duration of treatment is **3.7 days**.

49% resolved on the 3rd day of treatment and the remaining 38% recovered after 5 days of treatment.

13% needed 7 days of eyedrop treatment.

Efficacy: Clinical response rate of all the subjects showed **100% effectiveness** in the treatment regime. All subjects showed reduced symptoms of pain, light sensitivity and redness on the 3rd day of review and all subjects regained full visual acuity following completion of treatment with no adverse drug reactions (ADR).



CONCLUSION

- Study has demonstrated **high response rate** with **full recovery and restoration of visual acuity in all patients**. LVFX 1.5% eye medication with adjuvant therapy showed effective outcomes in more severe cases.
- Early symptom improvement (by day 3) serves as a clinical indicator of treatment success.
- Recommended for consideration as **first-line early treatment** by trained primary healthcare physicians for small, peripheral corneal ulcers.