# ARS-2 (*neffy*), Low-Dose Intranasal Epinephrine, Improves Urticaria Scores in Patients with Frequent Urticaria Flares: Phase 2 Study Results

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# RATIONALE

- Urticaria, or hives, is a common skin condition characterized by rapid appearance of wheals, ranging from small to large, often accompanied by itching or burning sensations, typically resolving within one to twenty-four hours.

- While chronic spontaneous urticaria symptoms are usually managed with antihistamines or anti-IgE antibodies, some patients still have occasional acute exacerbations. IM epinephrine is effective in relieving urticarial flares.

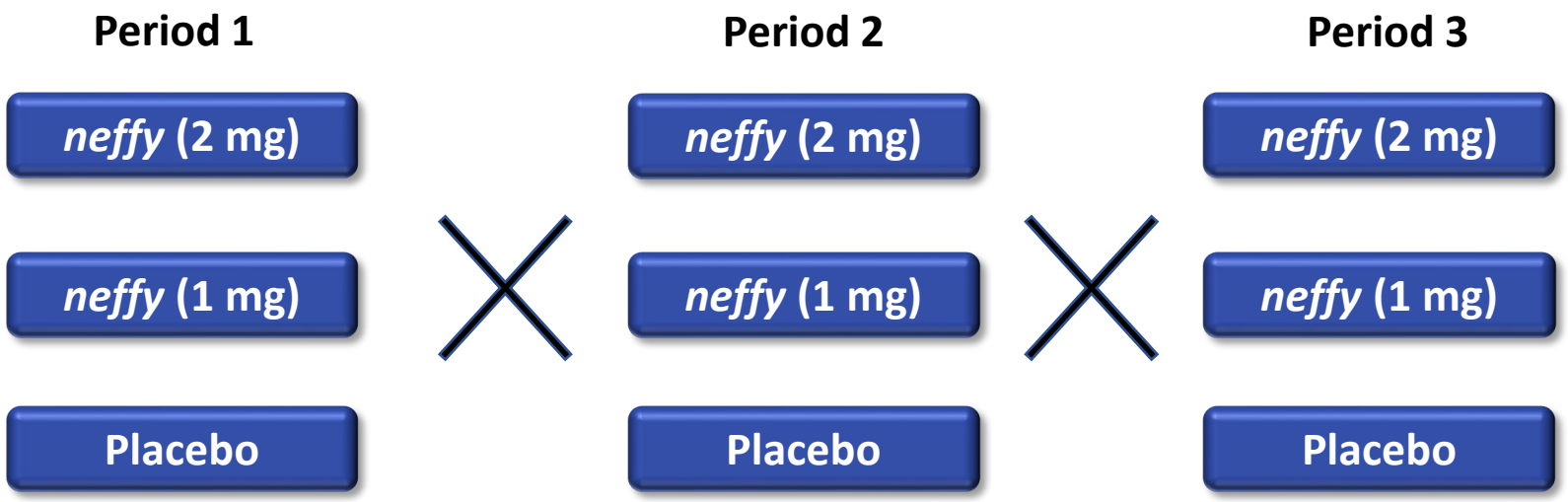
- A low-dose intranasal epinephrine spray (*neffy*) is being developed as a needle-free option for the treatment of severe allergic reactions and is expected to be a highly effective, safe, and easy-to-use option for the rapid treatment of urticaria exacerbations.

# STUDY DESIGN

## Patient Population

- Diagnosed urticaria subjects (CSU) who experience acute flares at least two (2) times a week while on a chronic treatment regimen
- Patient-rated pruritus and hive severity score ≥2 were enrolled

## Crossover Trial Design – Each Patient Receives Each Treatment Arm




**Window between the Periods: Average 12 days (range 2-88 days)**

## Primary Outcomes

**Patient-reported (UAS twice-daily)**

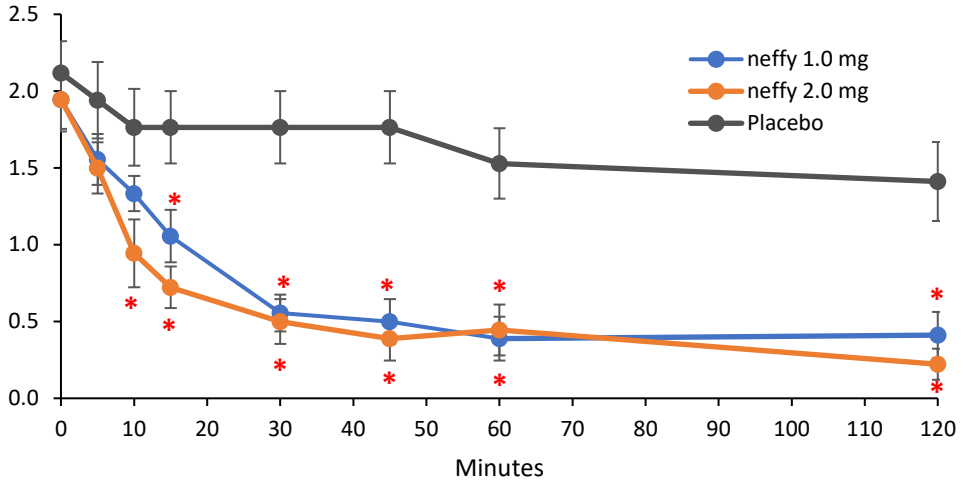
- Pruritus score from 0 to 3
- Hives score from 0 to 3
- Pain score (VAS) from 0 to 100

**Investigator-reported**

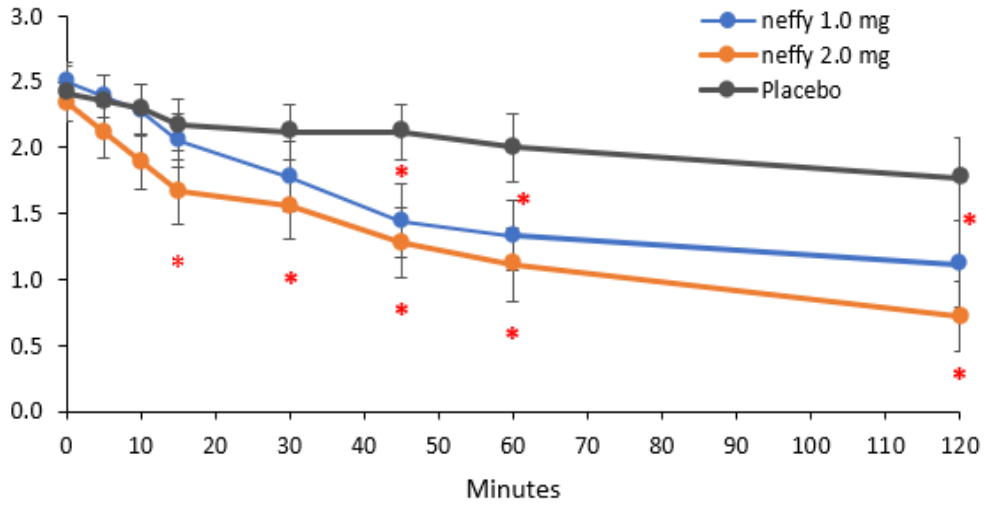
- Extent of urticaria based on % of body area (1: <10%, 2: 10 to 30%, 3: >30%)
- Erythema score from 0 to 4

# PATIENT REPORTED PRURITUS, HIVE SEVERITY SCORE & VAS FOR PAIN (n=18)

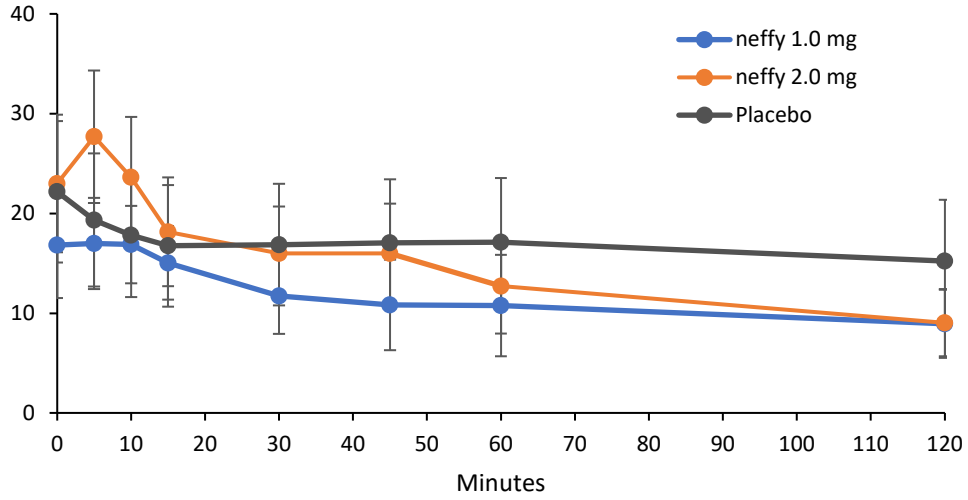
## Patient-Reported Itch Severity Score (Grade 0-3)




## Patient-Rated Hives Severity Score (Grade 0-3)

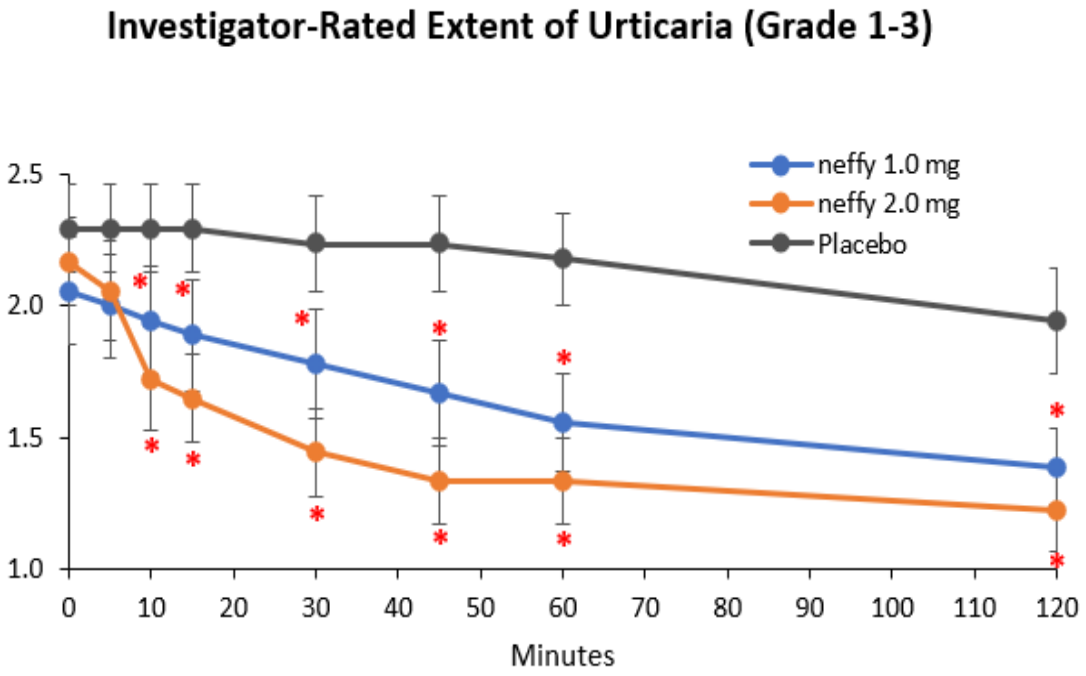


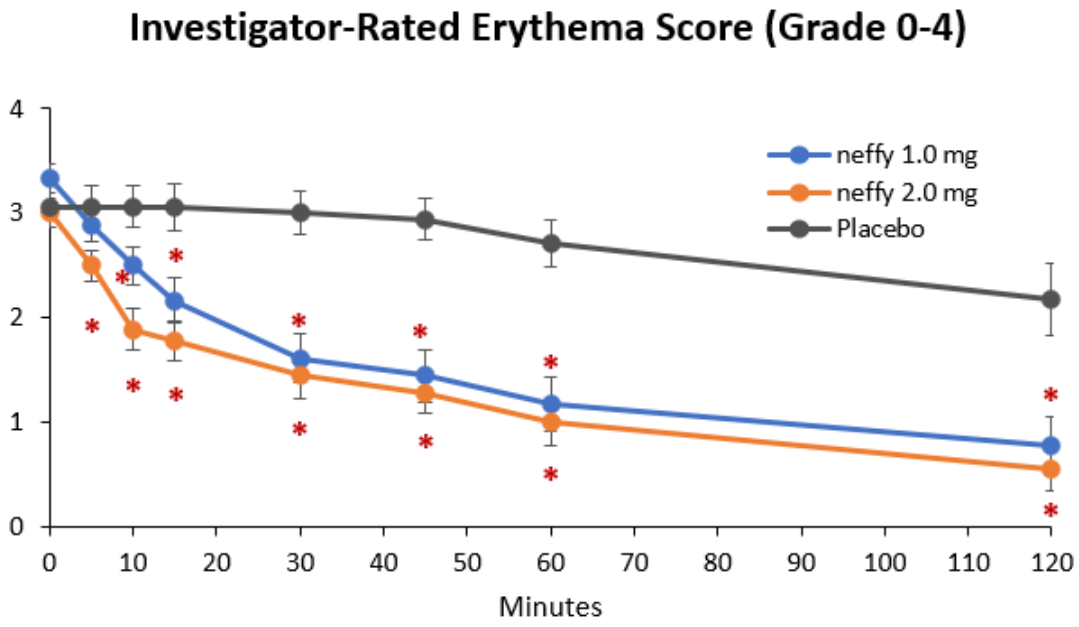

## Patient-Rated VAS for Pain (0-100)




*p<0.05 based on pair t-test of 1mg vs. placebo and 2 mg vs. placebo
Statistical Analysis based on n=17

# INVESTIGATOR-RATED EXTENT OF URTICARIA & ERYTHEMA SCORE

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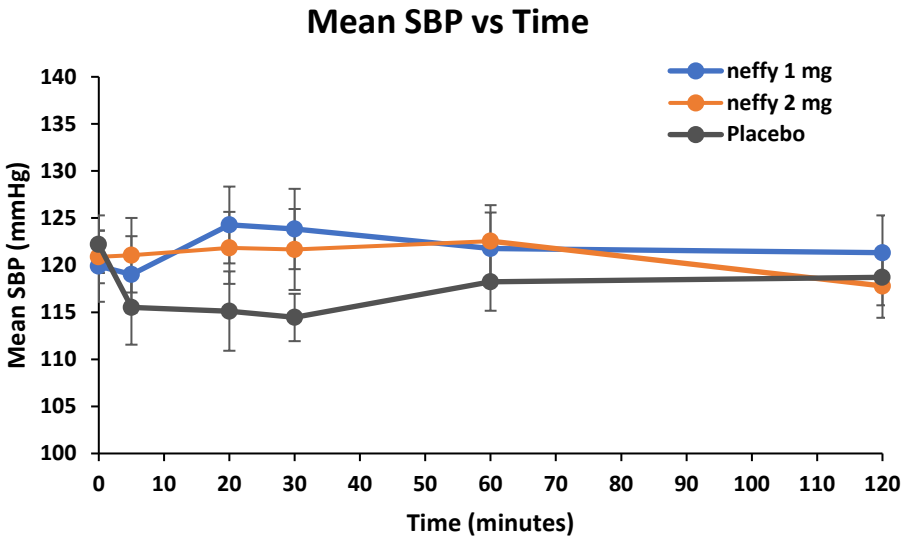
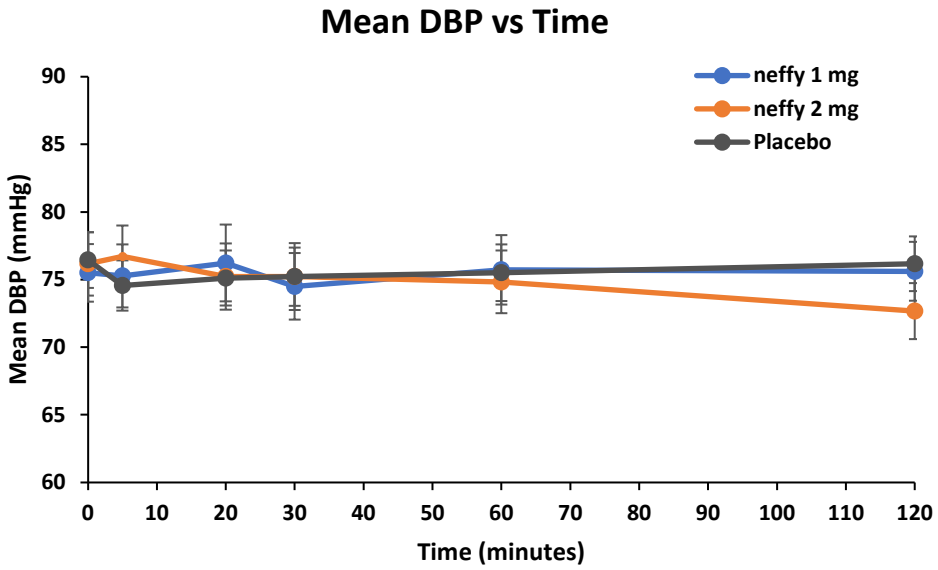
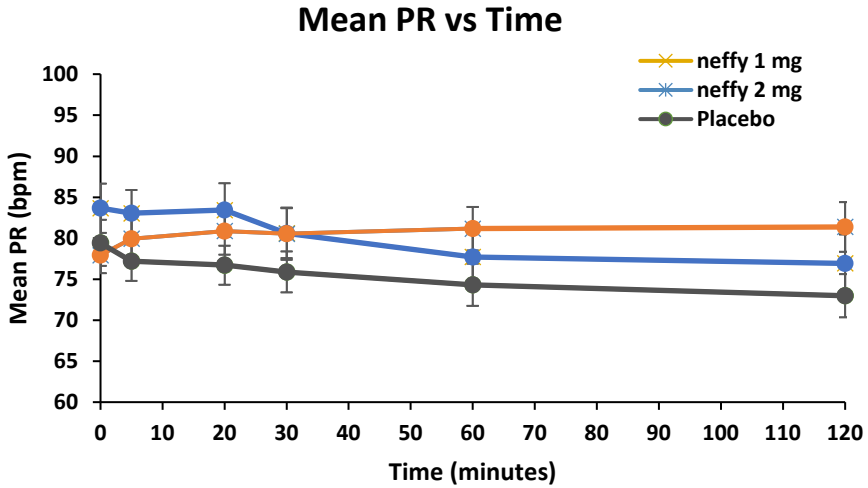
Statistical Analysis based on n=17

# PHARMACODYNAMICS



# SAFETY

- All adverse events were graded mild or moderate.
- Adverse events were observed in 8 patients.
- The most common adverse event was nasal discomfort reported in 5 patients.
- No serious events were observed during the study.

# CONCLUSION

- Both 1.0 mg and 2.0 mg doses of ***neffy*** resulted in improvement starting at 5 minutes and persisting for 120 minutes post-dose; no changes were observed following the placebo spray.

- These results demonstrate that the needle-free, ***neffy,*** may be a safe and effective option for the treatment of urticaria exacerbations (flares).

- Given the similarities between the pathophysiology and clinical management of urticaria and anaphylaxis, these findings also support the effectiveness of low-dose intranasal epinephrine for treating severe allergic reactions, including anaphylaxis.