

IN-EYE LUBRICANTS AND THEIR EFFECT ON SUBJECTIVE COMFORT WITH SILICONE AND CONVENTIONAL HYDROGEL LENS WEAR

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INTRODUCTION

- Despite most patients having an apparently normal preocular tear film and no apparent pathology, contact lens wear with both silicone hydrogels (SH) and conventional hydrogels (CH) is associated with a significant proportion of lens wearers reporting symptoms of dryness and discomfort.^{1,2,3}
- Both lens types, in particular SH lenses worn on a continuous wear modality, place great demands on the tear film. As in-eye solutions of varying viscosity are the primary means of improving symptoms of discomfort and dryness for lens wearers, it is important to examine their efficacy.^{4,5,6}

AIM

- To investigate the influence of three in-eye solutions on subjective comfort during contact lens wear.
 - Saline
 - In-eye lubricant of lower viscosity (Lub1)
 - In-eye lubricant of higher viscosity (Lub2)

METHODS

- Randomised (lenses and solution), single masked, clinical study
- Subjects (n=15), experienced soft contact lens (SCL) wearers (Table 1).
- 6 hours contralateral lens wear - Focus Night and Day (FND) SH lens and 1-Day Acuvue (AV) CH lens
- Four separate visits - baseline (no solution use) and 3 visits with solution use (Saline, Lub1, Lub2)
- Minimum washout period of 2 days between each solution.
- Solutions were instilled (2 drops bilaterally) immediately after lens insertion, and after 2 and 4 hours of lens wear.
- Subjects rating of comfort and dryness was rated:
 - Prior to lens insertion
 - Immediately after lens insertion and
 - After 6 hours lens wear.
- Comfort symptoms were rated on a scale from 1 – 100, with 1 = least comfortable, 100 = most comfortable.
- Other symptoms (dryness, itchiness, watery sensation) were rated 0–4, with 0 = no symptoms, 4 = severe symptoms.

Table 1: Subject data

Sex	12 M, 3 F (20%)
Age (yrs)	22.7 ± 1.5
CL wear experience (yrs)	4.5 ± 2.3
Average daily CL wear time (hrs)	11.8 ± 3.9
Previous CL lubricant use	74% (Yes), 26% (No)

RESULTS

Post - Insertion

- In comparison to baseline, subjective comfort ratings for all groups was less on lens insertion.
- However, this decrease in comfort rating was significantly less ($p < 0.05$) with use of Lub1 in comparison to use of saline, Lub2 or no solution, for both SH and CH lens wear (Figure 1 & 2).

6 hours post-insertion

- In comparison to baseline and post-insertion, subjective comfort ratings for all groups was less following 6hrs lens wear.
- At this time there was no statistically significant difference in subjective comfort rating amongst the various groups (Figure 1 & 2).
- There was a significant reduction ($p < 0.05$) in frequency of dryness symptoms with the use of Lub1 and Lub2 in comparison to no solution use with SH lens wear (Figure 3).

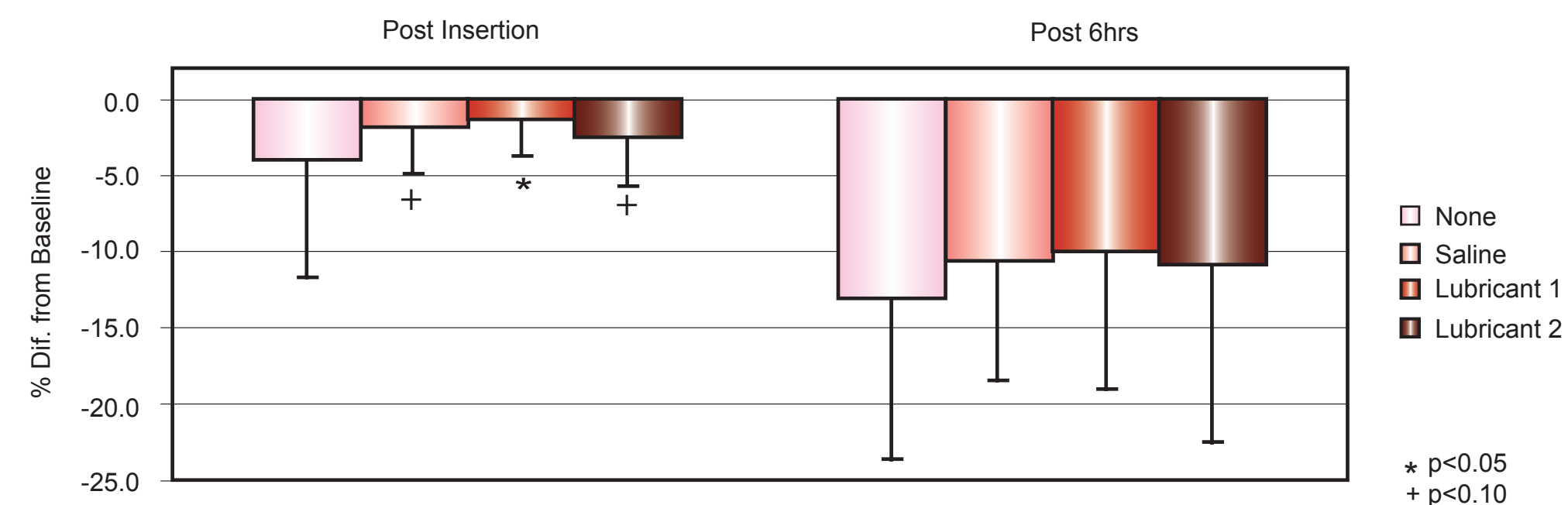


Figure 1: Differential subjective comfort (post - pre) with silicone hydrogels

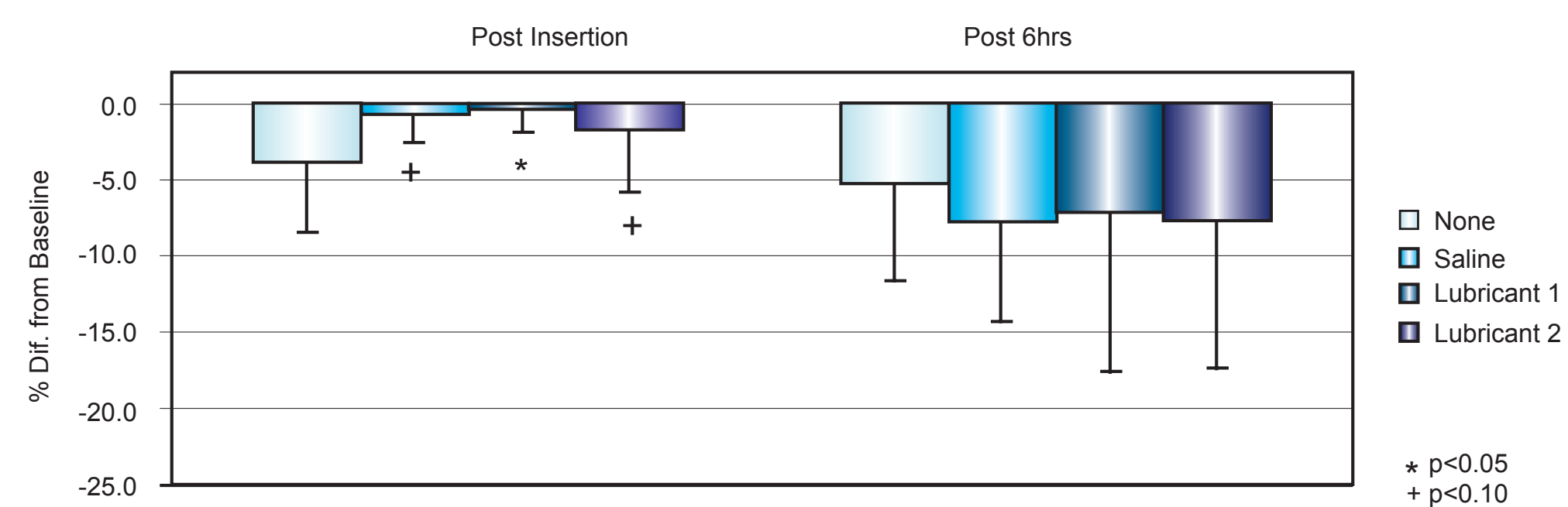


Figure 2: Differential subjective comfort (post - pre) with conventional hydrogels

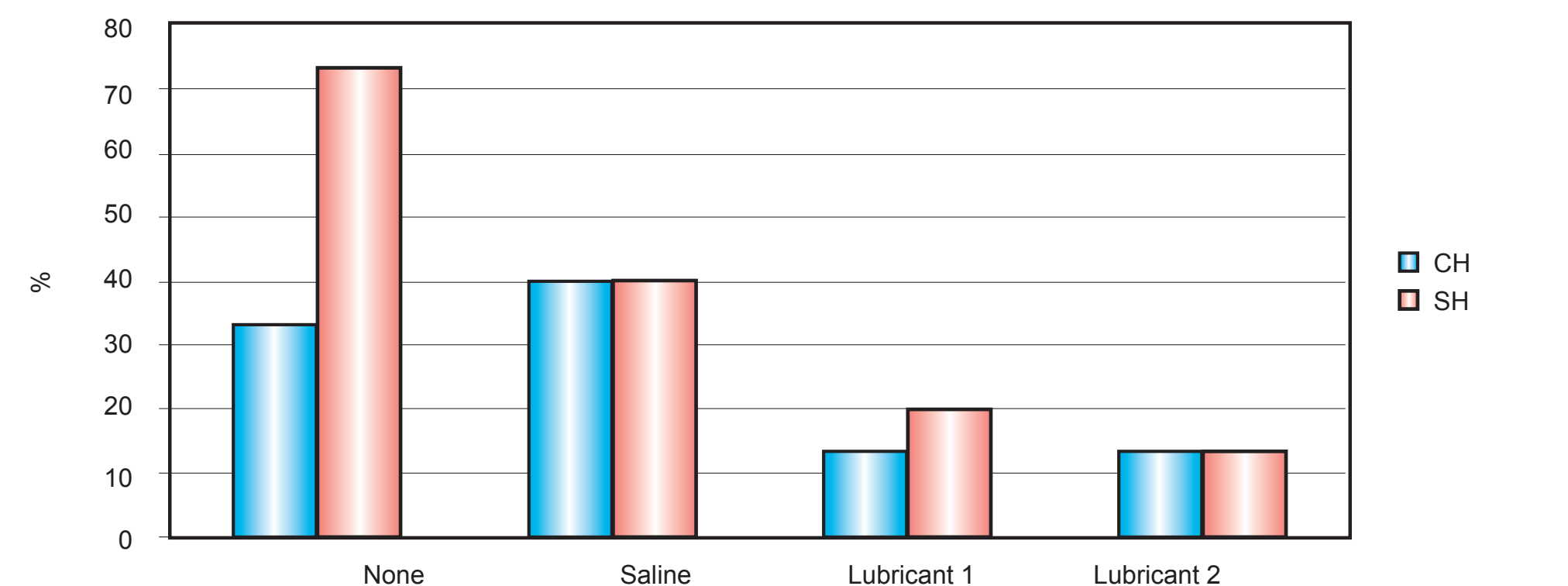


Figure 3: Frequency of dryness symptoms - post 6 hours

STATISTICAL METHODS

- Parametric data analysed using repeated measures ANOVA followed by multiple comparisons using Bonferroni correction.
- Non parametric data analysed using Friedman test followed by Wilcoxon Signed Ranks test.
- Level of significance – $p < 0.05$

CONCLUSIONS

- Post-insertion use of in-eye lubricants was effective in reducing initial sensation of discomfort with SH and CH wear. However, higher lubricant viscosity did not necessarily offer the best relief from symptoms.
- Repeated solution use over 6 hours did not translate into a significant improvement in longer-term comfort, regardless of lubricant or lens type.
- When in-eye lubricants were used, there was reduced frequency of dryness symptoms for SH wearers, compared to no solution use.
- General end of day SCL comfort seems to be less influenced by the use and viscosity of in-eye lubricants and is more likely affected by a range of factors such as contact lens – cornea interaction, ocular physiology, lens type and environmental considerations.

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