INTRODUCTION

- The chronic oxazolone-induced dermal inflammation in the mouse is commonly used to test for anti-inflammatory and anti-itchy compounds. Analysis of oxazolone-induced scratching is often limited to the manual counting of scratching over the first 30 to 120 min after exposure to oxazolone, partly due to the lack of a reliable apparatus for quantifying scratching automatically and partially due to the lack of any data which would justify measuring scratching for longer periods.

METHODS

Oxazolone treatment: Female BALB/c mice were sensitized to oxazolone by treating the right ears with 1% oxazolone in acetone on day 0. On day 7 mice were challenged with 1% oxazolone on days 7, 9, 11, 16, and 18. On days 7 to 18 mice were treated with either a 0.05% solution of betamethasone dipropionate in acetone or acetone. The ear thickness of mice was measured using a device in either oxazolone or betamethasone dipropionate treated ears.

RESULTS

A comparison of general activity (figure 4a), scratching (figure 4b) and ear thickness in control and oxazolone treated mice; the effect of betamethasone dipropionate.

Figure 4a. General activity.

General activity of mice treated with oxazolone and betamethasone dipropionate on day 11 and day 18. The effect of betamethasone dipropionate.

Figure 4b. Scratching.

Scratching events vehicle control and oxazolone treated mice on day 10. The effect of betamethasone dipropionate.

CONCLUSIONS

1. Neither oxazolone nor betamethasone dipropionate modify general behaviour.
2. Oxazolone-induced scratching is biphasic with an early acute “light” phase after application of oxazolone and a later, dark, phase. Scratching stimulation during the “dark” phase, but not the light phase is still present after 48 hrs, data not shown.
3. Scratching by vehicle treated mice occurred predominantly up to 20 Hz early in a chronic inflammation (day 11) with a clear stimulation of scratching at 16 Hz during the light and dark periods (Figures 5b and 5c). Betamethasone dipropionate reduced scratching at all frequencies similarly.
4. Later in the inflammation, day 18, there was a clear shift in scratching to higher frequencies, between 21 and 25 Hz, during both the light and dark periods. Betamethasone dipropionate preferentially inhibited high frequency scratching.
5. Ear thickness is not directly related to scratching.

REFERENCES