



POSTER PRESENTATION

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# Reproducibility of cell counts in nasal lavage: a comparison of pooled versus non-pooled nasal lavage samples

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## Background

Nasal lavage is used to collect cells and inflammatory mediators from the nasal cavity. No universal method for nasal lavage exists and there is little evidence as to which method is most reproducible or reflective of tissue inflammation.

## Objective

To compare the reproducibility of a single lavage versus three pooled lavages.

## Methods

Randomized crossover trial of 7 perennial allergic rhinitis, 7 nasal polyp, and 7 control subjects. Two visits with single lavage and two with pooled lavage in alternating order were performed 7 to 10 days apart using a modified Naclerio method.

## Results

A higher mean cell count was obtained using pooled lavage (means of 342 and 304 vs. 243 and 246,  $p=0.0004$ ). The mean eosinophil percentage was comparable for both methods (for  $>100$  cell count samples, 7% and 4% for single compared to 5% and 5% for pooled lavage,  $p=0.2$ ). Single sample lavage produced a higher intraclass correlation (ICC) for eosinophil percentage (0.695 vs. 0.583). A cutoff of 100 total cells gave the most reproducible eosinophil % with ICC of  $>0.8$ . The ICC was 0.87 for single sample lavage and 0.81 for pooled lavage with  $>100$  and 0.671 for SSL and 0.535 for MSL with  $>20$  cells. Neutrophil ( $p=0.2$ ), lymphocyte

( $p=0.2$ ), monocyte ( $p=0.3$ ), or basophil ( $p=0.3$ ) percentages were not significantly different.

## Conclusion

Although the total cell counts were lower, single sample lavage was comparable in measuring inflammatory cells. The intraclass correlation of the eosinophil percentage in single lavage was higher than pooled lavage perhaps due to a wash out effect from multiple lavages.

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