Cold vs. Allergy: Use of Nasal Cytology to Determine If High School Students Can Accurately Predict Their Own Diagnosis

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Colds and nasal allergies are common. These two conditions share similar symptoms, and are difficult to differentiate. The distinction is important because treatments are different. Student volunteers with active nasal symptoms were recruited during 3 time periods (fall, winter and spring). Informed consent was obtained. Nasal secretions were collected and subjects filled out a symptom questionnaire, including their prediction of diagnosis. Nasal mucus was smeared onto microscope slides, stained and read at 100x power for predominant white blood cell type. A predominance of eosinophils defined allergy; a predominance of neutrophils defined a cold. The prevalence of allergy was calculated by dividing the number of eosinophil-predominant subjects by the total subjects. The prevalence of colds was calculated in a similar fashion for those with neutrophil predominance. Percent of correct prediction was calculated by dividing the number of correct predictions by the total subjects. Significance for cell types between time periods was calculated by ANOVA. Significance for correct prediction was calculated with paired t-test. A total of 74 subjects completed the study. Predominance of eosinophils was found in 50%, 36%, 60% of subjects for fall, winter, spring, respectively (p=NS). Predominance of neutrophils were found in 41%, 55%, 40% of subjects for fall, winter, spring, respectively (p=NS). Fifty-three percent of subjects correctly predicted their diagnosis over all time periods (p=NS). Eosinophils were the predominant cell type during fall and spring, likely due to mold and tree pollen allergy seasons. Neutrophils were the predominant cell type during winter, corresponding to the peak of cold season. Subjects were unable to accurately predict if they had a cold or allergy

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