Recipient of 2011 Student Fellowship Award – SSF-CLAO REF

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Project Title: Effect of low humidity on women with Sjögren’s syndrome

Abstract

Specific Aims
Our project intends to investigate the impact of a low humidity environment on the signs and symptoms of dry eye in women with Sjögren’s syndrome (SS).

To test the hypothesis that women with Sjögren’s syndrome are more susceptible than women with dry eye without an underlying autoimmune disorder to a low humidity environment. We hypothesize that women with SS will demonstrate increased inflammation and worsening of signs and symptoms of dry eye when subjected to a controlled low humidity challenge test.

Background
Previous studies have evaluated the impact of a low humidity environment on dry eye symptoms using Controlled Adverse Environment (CAE) chambers, which are able to regulate humidity, temperature, air flow and visual tasking. The CAE has been shown to induce signs and symptoms of dry eye disease in individuals put in the chamber for various periods of time. Studies have shown that a low humidity environment leads to an unstable tear film quality and aggravates ocular symptoms. One study suggested patients with SS respond differently to treatment than others with dry eye. Lastly, a study by Mircheff et al suggested that low humidity conditions may influence lacrimal gland immunoregulation.

Significance
Individuals with SS often have a difficult time controlling the symptoms of dry eye, which leads to a decrease in work productivity and quality of life. Even though there is evidence that low humidity conditions aggravate signs and symptoms of dry eye, there has not been a study focusing on whether individuals with SS are more affected by low humidity than others with dry eye disease. Furthermore, we are using a novel device, the ClimaTears Goggle System (CTGS), to create a controlled periocular environment, which will allow a more objective measure of how women with SS respond to a low humidity environment. The data gathered in this project may aid in medical advances of treatment and management of dry eye symptoms in individuals with SS.