

ENT Summer Research Project Posting

Project Title: The Efficacy of topical 0.2% hydrogen peroxide solution rinse in the management of biofilm-associated chronic rhinosinusitis

Description of Project: (maximum 250 words)

Chronic rhinosinusitis (CRS) is an inflammatory condition of the paranasal sinuses affecting millions of patients. Biofilm has been implicated in chronic rhinosinusitis recalcitrant to appropriate medical therapy and well-executed endoscopic sinus surgery. Biofilms are bacterial or fungi communities surrounded by an extracellular polysaccharide matrix, which facilitates attachment to mucosa, survival, protection and proliferation.

H₂O₂ is an efficient antibacterial, antiviral and antifungal agent with potentials to dissolve, destroy and release the adherent biofilm. The aim of this study is to determine the safety and efficacy of diluted H₂O₂ in treating recalcitrant CRS vs the standard saline rinse.

Study Objectives are to determine if the use of H₂O₂ sinus irrigation:

1. Improves the endoscopy scores measured by the Modified Lund-Kennedy scoring system.
2. Improves disease specific quality of life, using Sino-Nasal Outcome Test-22 questionnaire.
3. Changes the type of microorganisms in cultured sinus secretions swabs.
4. Has long-lasting effect.
5. Reduces the density of opportunistic pathogens seen on mucosal biopsy of the sinus, using 16s rRNA sequencing.
6. Improves the functionality of cilia, which is known to be denuded by biofilm, using Saccharin test and ciliary biopsy when needed.
7. Improves health status, using EuroQol five dimensions questionnaire (EQ 5D 5L) questionnaire.
8. Is safe based on:
 - a. Patient reported adverse events using Visual Analog Scale for Pain (VAS) questionnaire;
 - b. Change in olfaction based on the UPSIT smell test;
 - c. Inflammation or mucosal changes on endoscopy as a result of H₂O₂ sinus irrigation.

Student's Role in the Project: (maximum 200 words)

The student will work directly under the supervision of a Clinical Fellow. Student will be actively involved in screening and recruiting patients for the study. Student will perform a chart review under the PI's supervision to identify potential candidates for the study. She/he will make the initial contact with the patients to provide study information and ask if they are interested in taking part in the study. She/he will meet with patients on their clinic visit to answer their questions and obtain the consent. The student would be responsible to ensure all required data have been collected at every scheduled study visit. If familiar with the statistical

analysis, she/he is encouraged to take part in the data analysis after the study is been completed. Monthly progress reports are required except if instructed otherwise. Performing literature review and active involvement in manuscript preparation would be another required task for this study.

Does this project require ethics approval? (Yes or No) Yes and ethic approval is been granted for this study.

What are the plans for research funding? (select the choices)

- a) Apply for UBC Faculty of Medicine Summer Student Research Program (1st and 3rd years – Deadline Feb 15, 2019)

<https://www.med.ubc.ca/current-learners/summer-student-research-program/>

Research Location: St. Paul's Hospital

Supervisor Information:

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