insurance status, and substance use highlight the potential effects of implicit bias on the decision to physically restrain patients and underscores the importance of objective assessments of these patients.

51152

Efficacy of Bimodal Visual-Olfactory Training in Patients with COVID-19 resultant Hyposmia or Anosmia Using Patient-Preferred Scents (VOLT Trial - Visual-OLfactory Training)

Amish Mustafa Khan, B.S., Dorina Kallogjeri, M.D., M.P.H. and Jay F. Piccirillo, M.D.
Washington University School of Medicine

ABSTRACT IMPACT: Olfactory dysfunction is a defining symptom of COVID-19 infection. As the number of total, confirmed COVID-19 cases approaches 7 million in the United States, it is estimated that there will be up to 500,000 new cases of chronically diminished smell. We offer a promising treatment. OBJECTIVES/GOALS: The primary aim is to explore the main effects and interaction of bimodal visual-olfactory training and patient-preferred scents on olfactory training in patients with post-COVID-19 hyposmia or anosmia. METHODS/STUDY POPULATION: The study will utilize a 2x2 factorial design. The two effects we will explore are unimodal versus bimodal training and conventional versus patient-preferred odors. All 4 arms will undergo 12 weeks of olfactory training. Participants will be assessed pre and post-intervention. Measurements of olfactory function include the objective smell identification test and subjective measures including the Clinical Global Impression Scale and Olfactory Dysfunction Outcomes Rating. Individuals eligible for the study include men and women between 18 and 70 years of age with olfactory dysfunction of at least 3 months duration initially diagnosed within 2 weeks of a COVID-19 infection. Of note, we will enroll nationally. RESULTS/ANTICIPATED RESULTS: We anticipate that the bimodal, patient-preferred scents training group will have the greatest improvement in smell scores, number of responders, and patient-reported sense of smell and health-related quality of life due to an additive interaction between the bimodal visual-olfactory and patient-preferred interventions. DISCUSSION/SIGNIFICANCE OF FINDINGS: The pathophysiology of COVID-19 olfactory dysfunction is mediated through damage to the peripheral and central olfactory pathways. This suggests that interventions most likely to be efficacious target both pathways, as olfactory training does.

57084

Combining artificial intelligence and robotics: a novel fully automated optical coherence tomography-based approach for eye disease screening

Ailin Song[1], Pablo Ortiz[2], Mark Draelos[1,2], Stefanie G. Schuman[3], Glenn J. Jaffe[3], Sina Farsiu[2,3], Joseph A. Izatt[2,3], Ryan P. McNabb[3], and Anthony N. Kuo[2,3]
[1]Duke University School of Medicine; [2]Duke University, Department of Biomedical Engineering; [3]Duke University, Department of Ophthalmology

ABSTRACT IMPACT: Despite its importance in systemic diseases such as diabetes, the eye is notably difficult to examine for non-specialists; this study introduces a fully automated approach for eye disease screening, coupling a deep learning algorithm with a robotically-aligned optical coherence tomography system to improve eye care in non-ophthalmology settings. OBJECTIVES/GOALS: This study aims to develop and test a deep learning (DL) method to classify images acquired from a robotically-aligned optical coherence tomography (OCT) system as normal vs. abnormal. The long-term goal of our study is to integrate artificial intelligence and robotic eye imaging to fully automate eye disease screening in diverse clinical settings. METHODS/STUDY POPULATION: Between August and October 2020, patients seen at the Duke Eye Center and healthy volunteers (age ≥18) were imaged with a custom, robotically-aligned OCT (RAOCT) system following routine eye exam. Using transfer learning, we adapted a preexisting convolutional neural network to train a DL algorithm to classify OCT images as normal vs. abnormal. The model was trained and validated on two publicly available OCT datasets and two of our own RAOCT volumes. For external testing, the top-performing model based on validation was applied to a representative averaged B-scan from each of the remaining RAOCT volumes. The model's performance was evaluated against a reference standard of clinical diagnoses by retina specialists. Saliency maps were created to visualize the areas contributing most to the model predictions. RESULTS/ANTICIPATED RESULTS: The training and validation datasets included 87,697 OCT images, of which 59,743 were abnormal. The top-performing DL model had a training accuracy of 96% and a validation accuracy of 99%. For external testing, 43 eyes of 27 subjects were imaged with the robotically-aligned OCT system. Compared to clinical diagnoses, the model correctly labeled 18 out of 22 normal averaged B-scans and 18 out of 21 abnormal averaged B-scans. Overall, in the testing set, the model had an AUC for the detection of pathology of 0.92, an accuracy of 84%, a sensitivity of 86%, and a specificity of 82%. For the correctly predicted scans, saliency maps identified the areas contributing most to the DL algorithm's predictions, which matched the regions of greatest clinical importance. DISCUSSION/SIGNIFICANCE OF FINDINGS: This is the first study to develop and apply a DL model to images acquired from a self-aligning OCT system, demonstrating the potential of integrating DL and robotic eye imaging to automate eye disease screening. We are working to translate this technology for use in emergency departments and primary care, where it will have the greatest impact.

62541

Continuity of Care for Patients with Chronic Gastrointestinal Disease: A Latent Class Analysis of Patients With High-Intensity Specialty Care Needs

Shirley Cohen-Mekelburg[1,2], Liberty Greene[2], Akbar Waljee[1,2], Tim Hofer[1,2], Sameer Saini[1,2] and Donna Zulman[2,3]
[1]University of Michigan; [2]VA Ann Arbor; [3]Stanford University

ABSTRACT IMPACT: Grouping patients with potentially high intensity specialty care needs based on their propensity for healthcare continuity patterns can inform the development of personalized care coordination and care navigation interventions OBJECTIVES/GOALS: To examine variation in healthcare continuity patterns across primary care, mental health care, and specialty care for a patient population with chronic gastrointestinal conditions and a high risk for healthcare utilization. METHODS/STUDY POPULATION: We analyzed data for Veterans Affairs patients with chronic gastrointestinal disease (cirrhosis, inflammatory bowel disease, chronic pancreatitis) whose 1-year hospitalization risk was ≥90th percentile in 2014, and who had a minimum of 4 office visits. To assess continuity, we examined frequency of office visits, number