Study aims to develop a machine learning model to predict cardiovascular disease using indicators of oral infections

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A study aiming to develop and test a machine learning model to predict cardiovascular disease using indicators of oral infections was presented

at the 52nd Annual Meeting & Exhibition of the AADOCR, held in conjunction with the 47th Annual Meeting of the CADR. The AADOCR/CADR Annual Meeting & Exhibition took place at the Oregon Convention Center in Portland on March 15-18, 2023.

The study, led by Dylan Joseph Baxter of the University of Pittsburgh, analyzed the relationship between self-reported cardiovascular disease ([heart surgery](link), heart valve, heart murmur, irregular heartbeat, and [congenital heart disease](link)) and markers for oral infections in 5,188 subjects from the University of Pittsburgh School of Dental Medicine's Dental Registry and DNA Repository project. Periodontal screening and recording data (PSR) available from 740 subjects and the decayed, missing, or filled teeth and surfaces (DMFT and DMFS) from 5010 subjects were used in the analyses.

The results pointed to a significant association between both DMFT and DMFS and cardiovascular disease that are independent of sex and tobacco use. The results of the analysis of covariance between DMFS and cardiovascular disease also remained significant (p-value = 0.0027) after controlling for participants' age. The [machine learning model](link) predicted whether a subject had cardiovascular disease based on their DMFS score with an accuracy of 84.3% in the registry.

The study confirmed the association between dental caries and cardiovascular disease and highlighted the potential for machine learning methods to improve cardiovascular disease prediction using indicators of oral infections. Future directions include to assess if artificial intelligence methods can help predict improvement in [cardiovascular disease](link) markers with dental caries management.

  More information: This research was presented as part of the Interactive Talk presentation, "Machine Learning Model for Cardiovascular Disease Prediction Using Indicators of Oral Infections",

which took place on Wednesday, March 15, 2023, at 2:20 p.m. Pacific Daylight Time (UTC-07:00) during the "Clinical and Translational Science Network III: Advances in Oral Disease Mechanisms and the Connection with Systemic Condition" session from 1:30 p.m.—3 p.m.

Provided by International Association for Dental Research

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