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The characterization of the oral/gut microbiome and markers of periodontitis in the setting of colon cancer in African American patients.[1]

Colorectal cancer (CRC) is the third most common cancer and the third leading cause of cancer death in the United States. Among all the racial/ethnic groups, African American (AA) patients have the highest incidence of CRC and mortality rate. Periodontitis is an oral chronic inflammatory disease and is among the 10 most prevalent chronic diseases. Periodontal disease is associated with an increased risk of colorectal cancer. A dysbiotic oral microbiome might induce local and systemic immune dysregulation that produces a pro-inflammatory environment that could lead to colon cancer. IL-8 expression is upregulated in tumor tissues compared with adjacent non-tumor tissues and there is a significant fold-change increase in AA compared CA. Mechanistically, IL-8 promotes tumor growth, metastasis, chemoresistance, and angiogenesis. No studies have been published describing differences in inflammatory proteins and bacterial communities between the right/left location of colon cancer in AA patients. This pilot study aimed to determine the feasibility of serum IL-8 and other cytokines associated with periodontitis to be used as a screening tool in the setting of colon cancer.
Methods: The correlation between IL-8 expression and prognosis, location and clinicopathologic features was analyzed in serum of 36 AA colon cancer patients, and 20 cytokines associated with periodontal disease by multiplexed sandwich using an enzyme-linked immunosorbent assay (ELISA)-based quantitative array.
Results: There were no differences in the serological level of IL-8 between right/left tumor location (p= 0.2840). With further subgroup analysis, we found that patients with high serological IL-8 levels in serum had worse prognosis.
Conclusion: IL-8 could be a potential indicator for prognosis when combined with other serological markers. Next step will be to evaluate the immunoproteome responses to 7 oral and gut bacteria associated with colon cancer using Nucleic Acid Programmable Protein Array.