New Study Finds Clinical Screenings Poor Predictors of Oral Cancer

Kellen Bosma, Southern Illinois '13

According to the National Cancer Institute, an estimated 40,250 people were diagnosed with cancer of the oral cavity and pharynx in the United States in 2012. The five-year survival rate for those diagnosed with early-stage oral and pharyngeal cancers is 82.4 percent. The five-year survival rate of those diagnosed with late-stage metastasized oral and pharyngeal cancers is 34.9 percent.

According to a study published in the December 2012 Journal of the American Dental Association, two thirds of malignant oral lesions are diagnosed in stage III or IV when they are found during a clinical oral examination (CaE). A CaE is a head and neck exam that includes inspection of the oral mucosa and palpation of the cervical and submandibular lymph nodes. Late-stage diagnosis shows that there is a great need for improving the current methods of screening for oral cancer in a COE.

The JADA study titled "The limitations of the clinical oral examination in detecting dysplastic oral lesions and oral squamous cell carcinoma" evaluated studies that included the terms "oral mucosal lesion screening" and "oral lesions" over a span of 44 years. The researchers then determined the quality of the studies using the Quality Assessment of Diagnostic Accuracy Studies Tool (QUADAS). The research also cited that 30 percent of patients diagnosed with oral squamous cell carcinoma and oropharyngeal cancer had undergone a cancer screening within the past three years before they were diagnosed.

Three values the authors measured as a part of the QUADAS tool were sensitivity, specificity and diagnostic odds ratio (DOR). The DOR is a ratio of the likelihood that a participant with a positive test result actually has the disease to the likelihood that a participant with a negative test result does not have the disease. Sensitivity is the proportion of positive test results to participants with disease. Specificity is the proportion of negative test results to participants without disease.

The sensitivity of the COE in the study was 93 percent. The authors noted that this was a good score for sensitivity. On the other hand, the specificity score was 31 percent. Typically an effective diagnostic test has a DOR of 25 or above. In this study, the authors scored the DOR at 6.1.

The researchers concluded that the COE is not predictive of a histologic diagnosis and that better adjunctive screening aids are needed. One such product undergoing evaluation for the diagnosis of oral cancer is PeriRx.

PeriRx is a salivary diagnostic aid that analyzes biomarkers to detect oral cancer and diabetes. It is a test developed by Neil Gottehrer and David T.W. Wong. The test is undergoing clinical trials in the United States and still in the validation phase. The founders of PeriRx state that their test features quantitative results while past adjunctive screening aids relied on subjective results based on the experience of the practitioner. It is a non-invasive procedure that collects a small amount of saliva and sends the samples to the laboratory to be analyzed. A test score for oral cancer and periodontal disease is returned within 48 hours. The practitioner then determines the need for biopsy and further treatment based on the results.

Even though COEs have shown limited diagnostic capabilities they remain the first line of defense in the diagnosis of oral cancers. Several products show potential in the improvement in diagnosis and treatment of oral cancer yet there are still questions surrounding these technologies. Further research and advances in science and technology are needed to more appropriately diagnose and treat the devastating disease of oral cancer.

Helen Ristic, Ph.D., director of scientific information for the ADA's Division of Science, contributed to this article.