CIGARETTE SMOKE ASSOCIATED WITH INCREASED ANTIBIOTIC RESISTANCE OF STAPHYLOCOCCUS AUREUS STRAINS, STUDY FINDS

Exposure to cigarette smoke may make some methicillin-resistant *Staphylococcus aureus* (MRSA) strains more resistant to antibiotics, according to a study published online July 25 in *Scientific Reports*.

A team led by researchers from the University of Bath in Bath, United Kingdom, conducted a series of laboratory-based experiments in which they exposed 6 genome-sequenced reference strains of MRSA clones to cigarette smoke. They selected the strains based on their clinical relevance and genetic diversity.

The study findings showed that some strains, including those known to cause invasive infections, exhibited increased resistance to the antibiotic rifampicin, as well as increased invasiveness and persistence within bronchial alveolar epithelial cells.

The investigators linked these changes to the emergence of small colony variants, hardy subpopulations that adapt to harsh conditions. The investigators hypothesized that stressful conditions imposed by cigarette smoke induce a stress response in both host and microbial cells, enabling adaptation, with the net effect being increased virulence, the potential for infection or both.

“We expected some effects, but we didn’t anticipate [that cigarette] smoke would affect drug resistance to this degree,” said Maisem Laabei, PhD, lecturer in the Department of Biology and Biochemistry and lead author. “These small colony variants are highly adhesive, invasive, and persistent. They can sit around for a long time,” he added.

This research was supported by the Carlos III Health Institute in Spain; European Regional Development Fund; Spanish Society of Pneumology and Thoracic Surgery, Barcelona, Spain; European Respiratory Society, Lausanne, Switzerland; Royal Society, Imperial College London, London, UK; National Institute for Health Research (NIHR) Biomedical Research Centre, Imperial College London; NIHR Clinical Lectureship, UK; and Programa Germans Trias Sapiens Fundació Catalunya la Pedrera.

For more information on this study, visit https://www.nature.com/articles/s41598-019-47258-6.

DENTURE-ASSOCIATED STOMATITIS MAY BE LINKED TO DECREASED ORAL MICROBIAL DIVERSITY, RESEARCHERS REPORT

Denture-associated stomatitis (DS) may be linked to decreased diversity of the microbiota in tongue samples, according to a study published online July 15 in *Scientific Reports*.

A team led by researchers from Cardiff University in Cardiff, United Kingdom, recruited 8 patients (6 women, 2 men) with DS and 11 patients (5 women, 6 men) without DS for the study. Eight of the 19 participants were current smokers.

Clinicians from the School of Dentistry at Cardiff University collected samples from the fitting surface of the denture, tongue, and hard palate using sterile swabs rubbed across each site for 15 seconds. In addition, to detect and isolate *Candida* species, they pressed foam squares soaked in phosphate-buffered saline against each of the 3 sites for 30 seconds.

The investigators extracted total bacterial DNA using an extraction kit and stored it at −20°C before next generation sequencing. Of the 57 samples collected, 50 were used for the analyses.

The study findings showed a significant (P = .007) decrease in the number of operational taxonomic units and, thus, reduced diversity in tongue samples from patients who had DS compared with those who did not have DS. The microbiota of the denture-fitting surfaces and palatal mucosa were similar between patients with DS and those without DS.

This reduced biodiversity in patients with DS suggests that dysbiosis may contribute to the onset of disease. However, further studies are needed to explore the bacterial microbiota associated with DS and to characterize the complex microbial communities to the species level, they concluded.

This study was supported by the Engineering and Physical Sciences Research Council, UK, and GlaxoSmithKline Consumer Healthcare, UK. One of the authors is employed by GlaxoSmithKline Consumer Healthcare.

For more information on this study, visit https://www.nature.com/articles/s41598-019-46494-0.

SKIP METASTASIS RATE LOW IN PATIENTS WITH CLINICALLY NODE-NEGATIVE ORAL CAVITY SQUAMOUS CELL CARCINOMA, STUDY FINDS

Patients with clinically node-negative (cN0) oral cavity squamous cell carcinoma (OCSCC) experience low rates of skip metastasis to neck level IV, according to a study published online May 9 in *JAMA Otolaryngology-Head & Neck Surgery*.

Researchers from Tel Aviv University in Tel Aviv, Israel, conducted a systematic review and meta-analysis of all relevant literature published from January 1, 1970, through December 31, 2017, regarding the rate of skip metastasis to neck level IV in patients diagnosed with OCSCC without preoperative evidence of neck involvement.

The systematic review included a search of the Embase, PubMed, and Google Scholar databases. Of the 115 articles retrieved, 11 retrospective studies and 2 prospective, randomized clinical trials (n = 1,359 patients) were included in the study.

Inclusion criteria were all cohorts, including those from any randomized clinical trial, case-control study, case study, or case report; studies of patients who received a histopathologic diagnosis of OCSCC; and studies that differentiated skip metastasis from sequential metastasis to neck level IV.

The study findings showed that the rate of level IV involvement in patients with cN0 OCSCC ranged from 0% through 11.40%, with a fixed-effects model of 2.53% (95% CI, 816
1.64% to 3.55%). In addition, the rate of skip metastasis ranged from 0% through 5.50%, with a fixed-effects model of 0.50% (95% CI, 0.09% to 1.11%). Moreover, the rate of level IV skip metastasis did not increase significantly in cases involving neck levels I through III.

When the data were categorized according to oral cavity subsites, the researchers observed significant findings only for primary lesions of the tongue. In an analysis involving 8 studies and 590 patients, the rate of involvement of neck level IV was 0% through 11.40%, with a fixed-effects model of 3.60% (95% CI, 2.09% to 5.42%).

The results of this systematic review and meta-analysis revealed low rates of skip metastasis to neck level IV in patients diagnosed with cN0 OCSCC. Therefore, supraomohyoid neck dissection (removal of lymph nodes in neck levels I through III) is adequate for this subset of patients, the authors concluded.

For more information on this study, visit https://jamanetwork.com/journals/jamaotolaryngology/fullarticle/2733034.

Compiled by Janice Snider.

CORRIGENDUM
The original article (Janakiram C, Chalmers NI, Fontelo P, Huser V, Lopez Mitnik G, Iafolla TJ, Brow AR, Dye BA. JADA. 2018:149[4]:246-255) described a data management approach using Streamline Health’s Clinical Analytics Looking Glass Platform to query data to build cohorts from Truven MarketScan Medicaid Database from January 1, 2013, through September 30, 2015. After publication of the original article and during subsequent analysis for other projects, inconsistencies were observed between cohorts built from direct query of the raw data and those obtained from the cohort builder. Troubleshooting efforts revealed a data deficiency in records that were loaded for use by the cohort builder, specifically in 2013 outpatient encounters. To remedy this issue for the purposes of this research study, the analysis was performed using direct query of the raw data. This corrigendum presents new statistics without the incomplete information obtained for the initial report. Differences observed between the original and the corrected versions of the article do not change the direction of any of the associations reported, the discussion of findings, or the underlying conclusions.

https://doi.org/10.1016/j.adaj.2019.06.020
Copyright © 2019 American Dental Association. All rights reserved.

CALENDAR OF EVENTS
ADA—AMERICA’S DENTAL MEETING
2020 October 15-18, Orlando, FL
2021 October 11-15, Las Vegas, NV
2022 October 13-16, Houston, TX
Copyright © 2019 American Dental Association. All rights reserved.