Justyna Varela
DEN1100
Greater New York Dental Meeting-Writing assignment
12/9/2019

Part 1:

My selection for the most interesting clinic table poster is one by Stephanie Dirani titled " Oral Bacteria and Esophageal Cancer. " -NYCCT Dental Hygiene Senior student. According to research she found, oral bacteria of pathological origin not only causes decay, gingival inflammation and periodontitis, but is also a contributor to esophageal cancer. Pathogenic bacteria travels down the digestive tract from oral cavity during swallowing food to different parts of esophagus. Several studies done on relationships between esophageal cancer and oral bacteria indicates, that bacteria found near the site of cancer was also found in oral cavity. There are 2 types of esophageal cancer EAC (Adenocarcinoma) affecting lower part of esophagus and ESCC (Squamous cell carcinoma) affecting upper and middle portions of the esophagus. ESCC is the most prevalent esophageal cancer worldwide. EAC was linked to *T.forsythia* bacterium and ESCC to *Porphyromonas gingivalis* bacterium. Signs and symptoms that might affect a patient include dysphagia, weight loss without trying, chest pain, pressure and burning, indigestion or heartburn that becomes worse, coughing or hoarseness.
The role of dental hygenist can be significant in prevention and maintenances of oral bacteria in patients who are susceptible to esophageal cancer, or have history of it. Thorough assessment and treatments, such as scaling, root planing, removal of biofilm and teaching home care are especially important. Furthermore, recommendation of dietary and nutritional changes can also be beneficial. Other recommendations might include, shorter timeline for re-care maintenance and proper dentifrices and rinses to keep bacteria in oral cavity to minimum.

The poster had a very well-organized and clear visual appearance. Information was straightforward to read and inclusion of graphics and pictures made it easier to understand the topic. A lot of material was in bullet format, which added to ease of

reading and navigation of information by the reader. List of references was very precise and orderly.

Presenter was extremely knowledgeable about the subject of her poster. She spoke with expertise and was able to reference the information to the scientific sources she used. It was clear to me, that she researched her topic thoroughly and in depth.

The topic of this poster is very closely related to the dental hygiene, as it points out to the link between pathogenic bacteria in oral cavity and esophageal cancer.

What is more, the dental hygienists plays a huge role in maintenance and management of healthy oral bacterial flora, thus prevention of potential cancer.

Part 2:

Reference list of three scholarly sources:

1. Peters, B.A.,Wu, J., Pei, Z., et.al.(2017, December 01). Oral Microbiome Composition Reflects Prospective Risk for Esophageal Cancers. Retrieved from http://cancerres.aacrjournals.org/content
2. Mizuno, H., Mizutani,S., Ekuni, D.,et.al (2018, December 27). New oral hygiene care regimen reduces postoperative oral bacteria count and number of days with elevated fever in ICU patients with esophageal cancer. Retrieved from http://www.jstage.jst.go.jp/article/josnusd/60/4/60_17-0381/_article
3. Diet and Nutrition During Treatment for Esophageal Cancer. Retrieved from http://www.mskcc.org/cancer-care/patient-education/nutrition -during-treatment-esophageal-cancer

Part 3:

My experience attending the Greater New York Dental Meeting was extremely positive. It was my very fist time attending the GNYDM and I was very impressed. Looking around at all the vendors and what they had to offer made me very excited about the future as a dental hygenist, possibly using all of this technology. I also briefly looked at the list of seminars and their topics, which looked very interesting. In addition, I learned a lot from and got intrigued by few clinic table posters displayed at the GNYDM. To conclude, I' m looking foreword to next year Greater New York Dental Meeting.

Prevention and Epidemiology

Cancer Research

Oral Microbiome Composition Reflects Prospective Risk for Esophageal Cancers

Brandilyn A. Peters[1], Jing Wu[1,2], Zhiheng Pei[2,3,4], Liying Yang[5], Mark P. Purdue[6], Neal D. Freedman[6], Eric J. Jacobs[7], Susan M. Gapstur[7], Richard B. Hayes[1,2], and Jiyoung Ahn[1,2]

Abstract

Bacteria may play a role in esophageal adenocarcinoma (EAC) and esophageal squamous cell carcinoma (ESCC), although evidence is limited to cross-sectional studies. In this study, we examined the relationship of oral microbiota with EAC and ESCC risk in a prospective study nested in two cohorts. Oral bacteria were assessed using 16S rRNA gene sequencing in prediagnostic mouthwash samples from $n = 81/160$ EAC and $n = 25/50$ ESCC cases/matched controls. Findings were largely consistent across both cohorts. Metagenome content was predicted using PiCRUST. We examined associations between centered log-ratio transformed taxon or functional pathway abundances and risk using conditional logistic regression adjusting for BMI, smoking, and alcohol. We found the periodontal pathogen *Tannerella forsythia* to be associated with higher risk of EAC. Furthermore, we found that depletion of the commensal genus *Neisseria* and the species *Streptococcus pneumoniae* was associated with lower EAC risk. Bacterial biosynthesis of carotenoids was also associated with protection against EAC. Finally, the abundance of the periodontal pathogen *Porphyromonas gingivalis* trended with higher risk of ESCC. Overall, our findings have potential implications for the early detection and prevention of EAC and ESCC. *Cancer Res; 77(23); 6777–87. ©2017 AACR.*

Introduction

Esophageal cancer is the eighth most common cancer and sixth most common cause of cancer-related death worldwide (1). Because late-stage presentation is common in most cases, esophageal cancers are highly fatal; 5-year survival rates range from 15% to 25% in most countries (2). Consequently, there is a critical need for new avenues of prevention, risk stratification, and early detection.

The two main types, esophageal adenocarcinoma (EAC) and esophageal squamous cell carcinoma (ESCC), differ greatly in incidence, geography, and etiology. ESCC, the most common type worldwide, predominates in developing countries, while EAC has become the predominant type in developed countries as incidence rates continue to rise (2, 3). Known risk factors include gastroesophageal reflux disease (GERD), obesity, low fruit/vegetable intake, and smoking for EAC, and alcohol drinking, low fruit/vegetable intake, and smoking for ESCC (4), but the etiology of these diseases cannot be fully explained by these factors.

Recently, upper digestive tract microbiota have been suggested to play a role in esophageal cancer etiology, and in particular in the rising incidence of EAC in developed countries (5). The complex microbial community of the upper digestive tract, consisting of mutualists, commensals, and pathogens, could facilitate carcinogenesis via activation of Toll-like receptors (6), or protect against carcinogenesis via synthesis of vitamins or providing barriers to pathogen invasion (5). Cross-sectional studies report distinct differences in upper digestive tract microbiota between GERD (7–9), Barrett's esophagus (an EAC precursor; refs. 7–10), EAC (7, 11), esophageal squamous dysplasia (ESD, an ESCC precursor; ref. 12), or ESCC (13) cases and controls. In addition, periodontitis (a disease of oral dysbiosis) may be associated with increased esophageal cancer risk (14). However, no studies have prospectively examined whether upper digestive tract microbiota influence risk for subsequent esophageal cancer.

We hypothesized that oral microbiota influence development of esophageal cancer. The oral microbiota shape the esophageal microbiome (15), due to migration of oral bacteria to the esophagus (16) and, therefore, may contribute to esophageal carcinogenesis. We conducted a prospective study nested in two large U.S. cohorts, to determine whether oral microbiota are associated with subsequent EAC or ESCC risk.

Patients and Methods

Parent cohorts

Participants were drawn from two U.S. cohorts: the NCI Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial cohort and American Cancer Society (ACS) Cancer Prevention Study II (CPS-II) Nutrition cohort. Characteristics of these

[1]Division of Epidemiology, Department of Population Health, NYU School of Medicine, New York, New York. [2]NYU Perlmutter Cancer Center, New York, New York. [3]Department of Pathology, NYU School of Medicine, New York, New York. [4]Department of Veterans Affairs New York Harbor Healthcare System, New York, New York. [5]Division of Translational Medicine, Department of Medicine, NYU School of Medicine, New York, New York. [6]Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, Maryland. [7]Epidemiology Research Program, American Cancer Society, Atlanta, Georgia.

Note: Supplementary data for this article are available at Cancer Research Online (http://cancerres.aacrjournals.org/).

Current address for J. Wu: Microbiology Section, New York City Public Health Laboratory, New York, NY.

Corresponding Author: Jiyoung Ahn, NYU School of Medicine, 650 1st Avenue, New York, NY 10016. Phone: 212-263-3390; Fax: 212-263-8570; E-mail: Jiyoung.Ahn@nyumc.org

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Original

New oral hygiene care regimen reduces postoperative oral bacteria count and number of days with elevated fever in ICU patients with esophageal cancer

Hirofumi Mizuno[1)], Shinsuke Mizutani[2,3)], Daisuke Ekuni[4,5)], Ayano Tabata-Taniguchi[4)], Takayuki Maruyama[6)], Aya Yokoi[4)], Chie Omori[4)], Kazuyoshi Shimizu[7)], Hiroshi Morimatsu[7)], Yasuhiro Shirakawa[8)], and Manabu Morita[4)]

[1)]Sasaki Dental Clinic, Komaki, Japan
[2)]Section of Geriatric Dentistry and Perioperative Medicine in Dentistry, Division of Maxillofacial Diagnostic and Surgical Sciences, Faculty of Dental Science, Kyushu University, Fukuoka, Japan
[3)]OBT Research Center, Faculty of Dental Science, Kyushu University, Fukuoka, Japan
[4)]Department of Preventive Dentistry, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan
[5)]Advanced Research Center for Oral and Craniofacial Sciences, Okayama University Dental School, Okayama, Japan
[6)]Center for Innovative Clinical Medicine, Okayama University Hospital, Okayama, Japan
[7)]Department of Anesthesiology and Resuscitology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan
[8)]Department of Gastroenterological Surgery, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan

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Abstract: Using a controlled pre/post study design, we investigated the effects of professional mechanical cleaning of the oral cavity with benzethonium chloride, interdental brushes, and hydrogen peroxide on the number of oral bacteria and postoperative complications among esophageal cancer patients in an intensive care unit. Before surgery, 44 patients with esophageal cancer were recruited at Okayama Hospital from January through August 2015. The control group (n = 23) received routine oral hygiene care in the intensive care unit. The intervention group (n = 21) received intensive interdental cleaning with benzethonium chloride solution and tongue cleaning with hydrogen peroxide. The number of oral bacteria on the tongue surface and plaque index were significantly lower in the intervention group than in the control group on postoperative days 1 and 2 (P < 0.05). Additionally, the number of days with elevated fever during a 1-week period was significantly lower in the intervention group than in the control group (P = 0.037). As compared with routine oral hygiene, a new oral hygiene regimen comprising benzethonium chloride, interdental brushes, and hydrogen peroxide significantly reduced the number of oral bacteria and days with elevated fever in patients with esophageal cancer.

Correspondence to Dr. Daisuke Ekuni, Department of Preventive Dentistry, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, 2-5-1 Shikata-cho, Kita-ku, Okayama 700-8558, Japan
Fax: +81-86-235-6714 E-mail: dekuni7@md.okayama-u.ac.jp

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Keywords: Intensive care unit; oral hygiene; oral bacteria; postoperative complications; nurses.

Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATON

Diet and Nutrition During Treatment for Esophageal Cancer

This information explains your nutritional care during your treatment for esophageal cancer at Memorial Sloan Kettering (MSK). It also explains the diet (eating and drinking) changes you can expect during and after your treatment.

It's important to get enough nutrition before, during, and after your cancer treatment. Getting enough nutrition can help you:

- Maintain your strength
- Keep your weight stable
- Fight infection
- Have fewer side effects
- Heal after surgery

Read through this resource at least once before your treatment. You may also want to use it as a reference during and after your treatment. You can use the table of contents to help you find the information that's most useful at different times during your treatment.