9th Edition of International Conference on **Environmental Science &Technology**
&
48th World Congress on **Microbiology**
&
50th International Congress on **Nursing Care**

June 24-25, 2019   Moscow, Russia

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Periodontal pathogens are a risk factor of oral cavity squamous cell carcinoma, independent of tobacco and alcohol and human *Papillomavirus*

Background & Aim: Over the past decade, there has been a change in the epidemiology of oral cavity squamous cell cancer (OC-SCC). Many new cases of OC-SCC lack the recognized risk factors of smoking, alcohol and human papilloma virus. The aim of this study was to determine if the oral microbiome may be associated with OC-SCC in nonsmoking HPV negative patients.

Methodology & Theoretical Orientation: We compared the oral microbiome of HPV-negative nonsmoker OC-SCC (n=18), premalignant lesions (PML) (n=8) and normal control patients (n=12). Their oral microbiome was sampled by oral wash and defined by 16S rRNA gene sequencing.

Findings: The periodontal pathogens Fusobacterium, Prevotella, Alloprevotella were enriched while commensal Streptococcus depleted in OC-SCC. Based on the four genera plus a marker genus Veillonella for PML, we classified the oral microbiome into two types. Gene/pathway analysis revealed a progressive increase of genes encoding HSP90 and ligands for TLRs 1, 2 and 4 along the controls→PML→OC-SCC progression sequence.

Conclusion & Significance: Our findings suggest an association between periodontal pathogens and OC-SCC in nonsmoking HPV negative patients.

Recent Publications

1. Weatherspoon D J, Chattopadhyay A, Boroumand S, Garcia I (2015) Oral cavity and oropharyngeal cancer incidence trends and disparities in the United States: 2000-2010. Cancer Epidemiol. 39(4):497-504.

2. Nossa C W, Oberdorf W E, Yang L, Aas J A, Paster B J, Desantis T Z, Brodie E L, Malamud D, Poles M A and Pei Z (2010) Design of 16S rRNA gene primers for 454 pyrosequencing of the human foregut microbiome. World J Gastroenterol 16(33):4135-44.

3. Al-Hebshi N N, Nasher A T, Maryoud M Y, Homeida H E, Chen T, Idris A M, et al. (2017) Inflammatory bacteriome featuring Fusobacterium nucleatum and Pseudomonas aeruginosa identified in association with oral squamous cell carcinoma. Sci Rep. 7(1):1834.

4. Wolf A, Moissl-Eichinger C, Perras A, Koskinen K, Tomazic P V and Thurnher D (2017) The salivary microbiome as an indicator of carcinogenesis in patients with oropharyngeal squamous cell carcinoma: A pilot study. Sci Rep. 7(1):5867

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5.   Hongsen Zhao, Min Chu, Zhengwei Huang, Xi Yang, Shujun Ran, Bin Hu, Chenping Zhang and Jingping Liang (2017) Variations in oral microbiota associated with oral cancer. Sci Rep. 7:11773.

Biography

Zhiheng Pei is an Associate Professor in the Department of Pathology at New York University School of Medicine and serves as an attending Pathologist in the Department of Veterans Affairs New York Harbor Healthcare System, USA. He has broad interests in the etiology and pathogenesis of cancers and chronic diseases. In past several years, he has been evaluating and pioneering a new concept in micro-ecological disease in several NIH-sponsored projects involving cancers in the mouth, esophagus and stomach as well as disease in tonsils. His laboratory defined the esophageal microbiome and demonstrated its association with esophageal adenocarcinoma in one of the Human Microbiome Demonstration Projects sponsored by NIH Roadmap Initiative. Clinically, he is interested in the diagnosis of diseases due to uncultivable microbial agents in fixed tissue specimens using molecular techniques.

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