

Study ties unhealthy gums to liver cancer risk

By Catharine Paddock Ph.D. | Published Thursday 20 June 2019

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A large study of people living in the United Kingdom found that those who reported having poor oral health, such as sore or bleeding gums or loose teeth, had a 75% higher risk of developing liver cancer.

Previous studies have already established that gums and teeth that are in poor health are a risk factor for a number of long-term conditions, including stroke, heart disease, diabetes, and some cancers.

"However," says Haydée W. T. Jordão, from the Centre of Public Health at Queen's University Belfast in the U.K., "there is inconsistent evidence on the association between poor oral health and specific types of gastrointestinal cancers, which is what our research aimed to examine."

Jordão is the lead author of a recent *United European Gastroenterology Journal* paper on the study.

Cancers of the digestive, or gastrointestinal system, are a major worldwide public health issue.



Maintaining good oral hygiene may have implications for the health of our liver, new research suggests.

The authors cite a global study that estimated that approximately 28% of new cases of cancer and 37% of deaths to cancer were due to gastrointestinal cancer in 2018.

The number of people with digestive cancers is rising. Aging populations and increases in "certain environmental and behavioral risk factors" are among possible reasons.

Some previous studies have connected poor oral health with cancers of the digestive system. However, the extent to which smoking, nutrition, and use of alcohol might influence the relationship remains unclear.

Study looked at digestive system cancers

Cancers of the digestive system include, for example, cancers of the: esophagus, stomach, small intestine, colon, rectum, anus, liver, bile ducts, and pancreas.

For their investigation, the researchers included the digestive organ cancers that the World Health Organization (WHO) list in the 10th revision of the International Classification of Diseases (ICD-10) Version 2016 C15–C26 classification codes.

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They drew on data from the U.K. Biobank project. The final dataset included information on more than 490,000 adults from England, Scotland, and Wales who were between 40 and 69 years of age when they signed up during 2006–2010.

The team did not include individuals who reported insufficient detail about their oral health or who had a history of cancer when they joined the project.

In all, the analysis took in data on 469,628 people, among whom 4,069 developed gastrointestinal cancer over an average follow-up of 6 years.

Of the individuals who developed digestive cancer, 13% had reported having poor oral health at the start of the study period.

From the other information that the participants had given, the researchers found that those who reported poor oral health were more likely to have obesity and to be female, of younger age, and "living in deprived socioeconomic areas." They were also less likely to be nonsmokers and eat more than two daily portions of fruits and vegetables.

The researchers defined poor oral health as "painful gums, bleeding gums, and/or having loose teeth." They tracked the incidence of gastrointestinal cancer through cancer registries.

Oral health and liver cancer risk

The analysis found no link between oral health and overall risk of gastrointestinal cancer.

However, when they examined cancers of specific organs, they did find links between poor oral health and hepatobiliary cancers, which are those that occur in the liver, gallbladder, or bile ducts.

The strongest of these links was with hepatocellular carcinoma, the most common of the adult cancers that start in the liver.

The analysis showed that having poor oral health was tied to a 75% higher risk of developing hepatocellular carcinoma.

According to the American Cancer Society (ACS), the incidence of liver cancer in the United States "has more than tripled since 1980."

The ACS estimate that in the U.S., doctors will diagnose about 42,030 people with cancers that start in the liver and close to 31,780 people will die of these diseases during 2019.

Reason for link is unclear

Jordão and colleagues say that scientists are not certain why poor oral health might have such a strong link to liver cancer and not to other cancers of the digestive system.

They suggest that gut bacteria might offer one explanation. "The liver," explains Jordão, "contributes to the elimination of bacteria from the human body."

Perhaps, when diseases such as cirrhosis, cancer, and hepatitis strike the liver, they impair its function, which, in turn, results in bacteria living longer and potentially causing more damage.

There is a bacterium called *Fusobacterium nucleatum* that inhabits the mouth, but scientists do not yet know whether it has a role in liver cancer.

"Further studies investigating the microbiome and liver cancer are therefore warranted."

— Haydée W. T. Jordão

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