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and chronic hairy cell leukemia (0.98%). Researchers used the Decayed, Missing, and Filled Teeth Index, which expresses the number of teeth falling into 1 of the 3 categories, to assess the state of dentition before and after 1 cycle of chemotherapy.

After the chemotherapy cycle, the investigators found that patients' dentition state changed in terms of decayed, missing, and filled teeth, and it correlated with hematologic parameters. For example, the index of missing teeth was 16.01 ± 9.81 in the first examination and 16.26 ± 9.78 in the follow-up examination ($P < .001$). The mean number of teeth with fillings was 3.51 ± 4.55 and 3.68 ± 4.68 in the first and second examinations, respectively ($P < .01$). Dr. Chalas and her colleagues say that adult patients with leukemia have high dental treatment needs and a high number of missing teeth; thus, a comprehensive and fast dental treatment plan is necessary to prevent systemic complications and ensure better quality of life.

Asked to comment on the study, Mark Levis MD, PhD, director of the Adult Leukemia Program, codirector of the Division of Hematologic Malignancies, and a professor of oncology at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins University, says that at Johns Hopkins and other centers that treat patients with leukemia, dental health has always been regarded as a key component of overall health for these patients.

"Dental infections and dental deterioration are significant problems for patients with leukemia. When they are diagnosed, any existing periodontal disease can worsen during therapy, and preexisting dental infections can actually be a danger to patients. Compounding this problem is that patients with leukemia often have very low platelet counts, particularly while they are receiving chemotherapy," says Dr. Levis. "Low platelet counts increase bleeding risk for any operation and make dental procedures very problematic and often impossible to do—any worsening of the dental status cannot be addressed until the patient has completed their therapy and is in remission. For our patients with leukemia who are in remission but scheduled to undergo bone marrow transplant as a final round of curative treatment, we require a formal dental evaluation for infection or any problem that needs intervention prior to starting the transplant process."

Reference

1. Ptasiwicz M, Maksymiuk P, Chalas R. Changes in dentition state in leukemic patients during chemotherapy. *Int J Environ Res Public Health*. 2021;18:8193. doi:10.3390/ijerph18158193

DOI: 10.1002/cncr.34081

Age and smoking predict antibody titers after the BNT162b2 COVID-19 vaccine

Smoking cessation before vaccination with the BNT162b2 COVID-19 vaccine may improve the individual efficacy of the vaccine according to findings from a study recently published in the journal *Vaccines*.¹ In the new study, researchers set out to evaluate antibody (Ab) titers 3 months after the second dose of the BNT162b2 vaccine and to explore clinical variables predicting these titers in Japan. The researchers found that age and smoking habit were the most important factors associated with low Ab titers.

For their study, the Japanese researchers enrolled 378 health care workers (255 women and 123 men) and then collected blood samples 91 ± 15 days after the second of 2 inoculations of the BNT162b2 COVID-19 messenger RNA vaccine (Pfizer/BioNTech) given 3 weeks apart. The investigators gathered medical histories and demographic characteristics by using a structured, self-reported questionnaire and then analyzed the relationships between Ab titers and these factors.

The median age of the participants was 44 years. The median Ab titer against the SARS-CoV-2 spike antigen was 764 U/mL. Patients who were older had significantly lower Ab titers; the median Ab titers were 942 and 1095 U/mL in men and women



in their 20s, respectively, but 490 and 519 U/mL in men and women in their 60s and 70s, respectively. In the age-adjusted analysis, the only risk factors for lower Ab titers were male sex and smoking, but the researchers say that the sex difference may have arisen from the sex difference in smoking rates. Ab titers were significantly lower in participants who currently smoke than in participants who no longer smoke.

Reference

1. Nomura Y, Sawahata M, Nakamura Y, et al. Age and smoking predict antibody titres at 3 months after the second dose of the BNT162b2 COVID-19 vaccine. *Vaccines (Basel)*. 2021;9:1042. doi:10.3390/vaccines9091042

DOI: 10.1002/cncr.34082

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