OHSU finds association between Epstein-Barr virus, inflammatory diseases of the mouth

November 10 2008

Researchers at Oregon Health & Science University's School of Dentistry have found that a significant percentage of dental patients with the inflammatory diseases irreversible pulpitis and apical periodontitis also have the Epstein-Barr virus. The Epstein-Barr virus is an important human pathogen found in more than 90 percent of the world population. It is associated with many diseases, including infectious mononucleosis, malignant lymphomas, and naspharyngeal carcinoma.

The findings are published online (www.jendodon.com/article/S0099-2399(08)00879-0/abstract) in the Journal of Endodontics, one of the leading peer-reviewed endodontology journals. The study also is expected to be published in the December 2008 (volume 34, issue 12) issue of the Journal of Endodontics.

Although the number of studies examining the role of herpesviruses in oral disease has been increasing, the majority of studies have focused on periodontitis, with no systematic attempt to examine herpesvirus in endodontic patients with varying inflammatory diseases. The OHSU study assessed the presence of human cytomegalovirus (HCMV), Epstein-Barr virus (EPV), herpes simplex virus (HSV-1), and Varicella zoster virus (VZV) in 82 endodontic patients, including patients with irreversible pulpitis and apical periodontitis, and compared them with 19 healthy patients. The goal of the study was to determine the potential association of herpesvirus with clinical symptoms, including acute pain

and size of radiographic bone destruction.

Using a variety of methods, the OHSU team found the Epstein-Barr virus DNA and RNA in significantly higher percentages (43.9 percent and 25.6 percent respectively) compared with healthy patients (0 percent). Human cytomegalovirus DNA and RNA were found in measurable numbers in both endodontic patients (15.9 percent and 29.3 percent respectively) and in healthy patients (42.1 percent and 10.5 percent respectively). Herpes simplex virus DNA was found in low percentages of endodontic patients (13.4 percent) and only one patient showed the presence of Varicella zoster virus.

While a previous study examined the incidence of herpes viruses in apical periodontitis, "this is the first time irreversible pulpitis has been analyzed for the presence of herpes viruses and associated with Epstein-Barr virus," noted Curt Machida, Ph.D., OHSU professor of integrative biosciences and principal investigator, whose lab was host for the study. "The incidence of irreversible pulpitis and apical periodontitis, caused by bacteria and possibly the latent herpes virus, is painful and can greatly impair the body's natural immune system. Studies such as ours could someday lead to more effective treatments of inflammatory diseases of the mouth."

Source: Oregon Health & Science University