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New optical fluorescence technology for early detection of oral disease

The traditional paradigm of dentistry was a surgical model that visually detects late stage lesions and then removed them surgically. However, the new paradigm of dentistry suggests the detection of oral diseases in their earlier and the reversal of the early lesions by non-surgical approach. Over the past 20 years, there has been a significant development of technology to detect early dental caries and several devices already launched to dental market. Among these technologies, Quantitative Light Induced Fluorescence (QLF) conspicuously stands out among these devices. New QLF technology use quantitative visible light induced fluorescence system which can detect not only mineral loss of tooth but also the bacterial porphyrin induced fluorescence at high resolution. This system uses specific wavelength of blue visible light and special filter system for detection of fluorescence. This new technology can easily detect old dental biofilms and dental calculus by distinctive red fluorescence from reaction of bacterial porphyrin. This can also show and evaluate the minute changes in mineral contents from tooth enamel then suggest quantitative values for each lesion. Recently this technology has extended its area of clinical application to detect the tooth cracks and oral malodor. In this presentation, the fundamental concept of QLF and the possible clinical applications will be explained.

Biography

Baek Il Kim has completed his PhD in 2004 from Graduate School of Dentistry, Yonsei University and is Visiting Professor at the Department of Oral Biology Research Group, Melbourne University. He is Chairman of the Department of Preventive Dentistry and Public Oral Health and Vice Dean for Research Affairs in Yonsei University, College of Dentistry, Seoul, Korea. He has been a Senior Member of European Organization for Caries Research and has published many articles in reputed journals.

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