21st Annual World Dental Summit

February 26-28, 2018 | Paris, France

Accuracy in bracket position with a CAD/CAM aided indirect bonding system in the posterior teeth with different cusp heights

Jiyeon Kim and Yun Sic Chun Ewha Womans University, South Korea

Objective: To evaluate the effect of cusp height of the posterior teeth (1st premolar, 2nd premolar and 1st molar) on the accuracy of the computer-aided design and computer-aided manufacturing (CAD-CAM) indirect bonding system.

Material & Method: Five kinds of upper arch models, without attrition, were divided into two groups: Control group (with 0.5 mm of grinding) and experimental group (with the addition of 0.5 mm of wax to the cusp tip). Rapid prototype models were printed for both groups. Transfer jigs of the individual tooth brackets were designed using a digital model. 3D programs were used to evaluate the differences between the intended digital bracket position and actual bracket position after indirect bonding. The differences were measured in the linear (mesiodistal, buccolingual and vertical) and angular (angulation, rotation and torque) dimensions. The Wilcoxon signed rank test was used for statistical analyses; significance was defined as p<0.05.

Result: Both groups had a similar frequency of errors between the intended and actual bracket positions. The frequency of vertical errors over 0.5 mm was 3.3% and 6.7% in the control and experimental groups, respectively. The frequencies of angulation, rotation and torque errors over 1° were 53.3%, 43.3% and 60%, respectively, for the control group; 60%, 60% and 73.3%, respectively, for the experimental group.

Conclusion: A difference in cusp height of maxillary posterior teeth did not produce a statistically difference in the vertical, angulation, rotation and torque dimensions of bracket placement when using a CAD/CAM indirect bonding system. However, given the tendency for a higher frequency in bracket placement errors in posterior teeth with larger cusp tips, cusp height should be considered when using a CAD/CAM indirect bonding system.

Biography

Jiyeon Kim is a Dentist and Orthodontist. She is a PhD student of Medical Science at Ewha Womans University, Seoul, South Korea. She is interested in dental material, biomaterial and technology to improve the way for treatment.

venice1024@naver.com

Notes: