

The effect of two designs of overdenture on bone density of mandibular alveolar supporting structures using computed Tomography

This study evaluated the effect of the design of overdenture on the bone mineral content of the mandibular alveolar bone around the remaining abutment teeth. Six female subjects which made two groups, were selected, each received maxillary complete denture opposed by mandibular overdenture. Conventional designs of overdenture were used for the first group, metal dowels and copings for the remaining canines and for the second operty cast dowels and copings with tissue bar in between were utilized for the mandibular overdenture. Measurements of bone density were performed at two sites of each canine (mid-root and apex) using computed tomography, immediately after insertion of overdentures and six months later. The comparison of each site between the first measurement and the six-month later measurement revealed increase in bone density value but not statistically significant. Comparison of the mean of each group (representing all sites together) before and after the six months period showed no statistical significance in the bone density for conventional design group at both sites and a statistical significant increase in bone density for the tissue-bar design group at both sites. Quantitative computed tomography seemed to be a reliable and adaptable technique for bone density measurement which can help to predict the rate of change in the alveolar bone.