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Detection of mandibular cortical change using computer-assisted diagnosis system on panoramic radiography

Mandibular cortical change is caused by many kinds of diseases, such as osteoporosis, hyperparathyroidism, rickets, renal osteodysplasia, etc. This study aimed to test a Computer Assisted Diagnosis system (CAD) for detecting mandibular cortical change on panoramic radiograph. Panoramic radiographs were interpreted by two oral and maxillofacial radiologists who have experienced more than 10 years. Panoramic radiographs of 1,268 female (mean age 45.2±21.1 years) were classified into normal and changed group. Among the subjects, 535 panoramic radiographs in normal group (mean age 28.6±7.3 years) and 533 in changed group (mean age 72.1±8.7 years) were used for training CAD in condition of two kinds of establishing Region of Interest (ROI); one with a ROI under the maxillary alveolar bone and the other with two ROIs for bilateral mandibular bodies under the teeth. A 100 panoramic radiographs in normal group (mean age 26.6±4.5 years) and 100 in changed group (mean age 72.5±7.2 years) were used for testing CAD for detecting mandibular cortical change. The detection results by CAD were compared with those by the two oral and maxillofacial radiologists. CAD showed 3.5% errors in a ROI and 1% errors in two ROIs in detecting mandibular cortical change. The sensitive areas were cancellous bone of the upper and lower jaws in a ROI, and cancellous and cortical bone on the mandible in two ROIs. It might produce more reliable results in using CAD that oral and maxillofacial radiologists restrict ROI to the interpretation area.

Biography

Suk-Ja Yoon has completed her PhD from Chonnam National University. She has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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