Exposure of Radon in West Java Indonesia and its effect on oral health

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Introduction: Radon as natural ionizing radiation an odorless, tasteless, invisible gas that mixed in the air, decay by alpha particle emission (T½ = 3.8 days), able to diffuse through rock and soil can caused effect on oral health.

Objective: This study was conducted to determine radon exposure and socioeconomic condition in West Java, Indonesia, especially Gunung Masigat and Cipatat, as well as its effect on oral health.

Materials and methods: The study used descriptive method. Radon level was determined by radon detector. Socioeconomical background was collected by using questionnaire. Oral health data was collected with epidemiological survey based on WHO Basic Oral Health Surveys Method (2013).

Results: The result showed that radon exposure in Gunung Masigat was 24.8±29 Bq/m³ and in Cipatat 16.6±24 Bq/m³. Approximately three quarters of the people in both areas lives in the area for more than 20 years. The highest percentage of education level attained in Gunung Masigat was junior high school and in Cipatat was elementary school. The income level in Gunung Masigat was low, while in Cipatat was medium. Plasma superoxide dismutase (SOD) of the people in both areas showed that there was free radical in the cell caused radon activity. The average plasma SOD in Cipatat was 1.20, while in Gunung Masigat was 3.11. Both areas were often affected by diseases, including oral diseases such as dental caries and periodontal diseases. Dental caries and periodontal severity index in Gunung Masigat were higher than those in Cipatat.

Conclusion: It can be concluded that oral health condition is worse in area with higher radon level and it can be assumed that oral health can be influenced by socioeconomic condition.

Keywords: Radon, Oral health, SOD, Socioeconomic condition

CBCT assessment changes after endo

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Objectives: To obtain CBCT measurements of lesion vs. periapical pathology by using three-dimensional CBCT technique and maxillary sinus mucosal thickness:

Materials and methods: Following 1-week application of post-operative medications, pre-operative and post-operative CBCT scans were obtained using Carestream 9300 3D (Carestream Health). The patients were asked to follow the specific protocol for periapical pathology, measurements axial CBCT scan were performed using three-dimensional CBCT software. Patients were operated on by a radiologist. All measurements of CBCT scans were performed using CBCT software. Three-dimensional CBCT measurements were performed with the following parameters: 120 kV, 9.4 mAs, 300 ms, field of view 200 mm, voxel size 0.25 mm, reconstruction time 30 s.

Results: A total of 15 patients were re-evaluated with CBCT scan. Post-operative CBCT scans were performed at 1 week after the endodontic procedure. The results showed a significant increase in the number of patients with periapical radiolucency, reduced bone density, and increased root canal filling radiopacity.

Conclusion: Our findings show that CBCT is a useful tool for assessing changes in periapical pathology and bone density over time. Authors declare no conflict of interest.