

# Densitas Radiografik Individu 25-40 Tahun dengan Kehilangan Tinggi Tulang Interproksimal sampai Setengah Akar: Metode Evaluasi Pixel Intensity pada Panoramik Digital = Radiographic Density of Loss Interproximal Bone Height in Individual Aged 25- 40 Years-Old: Pixel Intensity Evaluation Method on Panoramic Digital

Dinda Aziza Rialita, author

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## Abstrak

Latar Belakang: Alveolar bone loss dapat terjadi karena ketidakseimbangan remodeling tulang. Selain kehilangan tinggi, tulang alveolar juga mengalami penurunan volume tulang trabekula. Sudah banyak studi yang menilai densitas tulang dengan status periodontal, namun masih sangat sedikit yang melakukannya pada subjek dengan metabolisme tulang yang sehat. Tujuan: Memperoleh hasil evaluasi densitas radiografik interproksimal individu laki-laki dan perempuan usia 25-40 tahun dengan kondisi kehilangan tinggi alveolar sampai dengan setengah akar. Metode: Studi cross-sectional dengan 160 sampel (80 tinggi alveolar normal dan 80 kehilangan tinggi alveolar) radiograf panoramik digital individu laki-laki dan perempuan usia 25-40 tahun dari data sekunder di RSKGM FKG UI. Evaluasi densitas radiografik menggunakan metode pixel intensity dari hasil pengukuran nilai rerata graylevel menggunakan aplikasi I-Dixel Morita di interproksimal alveolar regio premolar dua mandibula. Selanjutnya, evaluasi kesepakatan pengukuran intraobserver dan interobserver dilakukan dengan uji reliabilitas interclass correlation coefficient (ICC). Analisis deskriptif dan uji komparatif dilakukan antar kategori kondisi tinggi alveolar dan jenis kelamin. Hasil: Hasil analisis rerata densitas berdasarkan kondisi tinggi alveolar, didapati terdapat perbedaan bermakna secara statistik antara kondisi tinggi alveolar normal dan kehilangan tinggi alveolar. Evaluasi densitas interproksimal kondisi kehilangan tinggi alveolar lebih rendah ( $120.61 \pm 1,92$ ) dibandingkan kondisi tinggi alveolar normal ( $135.71 \pm 1,57$ ). Pada analisis rerata densitas antar jenis kelamin, terdapat perbedaan bermakna antar jenis kelamin dengan kondisi tinggi alveolar berbeda, tetapi antar jenis kelamin dengan kondisi tinggi alveolar yang sama tidak ditemukan perbedaan yang bermakna. Densitas interproksimal pada kondisi tinggi alveolar normal kelompok subjek perempuan ( $135,10 \pm 1,90$ ) memiliki rata-rata densitas lebih rendah dibandingkan kelompok subjek laki-laki ( $137,80 \pm 2,41$ ). Kesimpulan: Terdapat perbedaan bermakna densitas interproksimal alveolar antara kelompok kondisi tinggi alveolar normal dan kehilangan tinggi alveolar, serta tidak ditemukan perbedaan bermakna antar jenis kelamin pada kondisi tinggi alveolar yang sama.

.....Background: Alveolar bone loss occur because of the imbalance of bone remodeling process. In addition to decrease of alveolar height, it reduce trabecular volume as well. Several studies have already address the assessment of bone density with periodontal status, but there is little knowledge to assess it with healthy subjects. Objective: The aim of this study was to obtain results of interproximal radiographic density evaluation of male and female individuals aged 25-40 years old with the condition of losing alveolar height up to half of the root. Method: Cross-sectional study with 160 samples (80 normal alveolar height and 80 loss of alveolar height) digital panoramic of male and female individuals 25-40 years old using secondary data at RSKGM FKG UI. Evaluation of radiographic density used the pixel intensity method from the result of measuring mean graylevel value with I-Dixel Morita application in the alveolar interproximal region of the mandibular second premolar. Furthermore, the reliability evaluation of intraobserver and interobserver

measurement was carried out by testing interclass correlation (ICC). Descriptive and comparative tests were performed between categories of alveolar height conditions and gender. Result: The analysis of average density between different alveolar height showed there was a statistically significant difference between normal alveolar height and decreased alveolar height. Evaluation of interproximal density in condition loss of alveolar height was lower ( $120,61 \pm 1,92$ ) than in condition normal alveolar height ( $135,71 \pm 1,57$ ). In average density between genders analysis showed statistically significant differences were found between genders with different alveolar height conditions, but there is no significant difference were found between gender with same alveolar height conditions. The interproximal density in normal alveolar height of the female subject group ( $135,10 \pm 1,90$ ) had an average density lower than the male subject group ( $137,80 \pm 2,41$ ). Conclusion: There was significant difference of interproximal density between normal alveolar height group and loss of alveolar height, and there was no significant difference between genders on same alveolar height condition