Perbandingan Computed Tomography Texture Analysis antara Karsinoma Nasofaring dengan Nasofaringitis Kronis = The Comparison of Computed Tomography Texture Analysis to Differentiate between Nasopharyngeal Carcinoma and Chronic Nasopharyngitis

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Abstrak

Latar Belakang: Indonesia menduduki urutan kedua terbanyak kasus karsinoma nasofaring (KNF) di dunia. CT masih menjadi modalitas awal untuk mendeteksi KNF. Akan tetapi gambaran CT pada KNF kadang sulit untuk dibedakan dengan nasofaringitis kronis (NFK) terutama jika ukuran tumor masih kecil. Texture analysis (TA) merupakan suatu metode matematika yang digunakan untuk menganalisis distribusi dan hubungan pixel gray level suatu gambar. TA banyak diteliti di bidang onkologi kepala dan leher untuk membedakan karakteristik tumor, jinak atau ganas, menilai respon terapi serta memprediksi prognosis pasien.
Metode: Studi komparatif dengan desain potong lintang. Terdapat 27 sampel KNF dan 18 sampel NFK yang dilakukan ROI pada regio tumor, kemudian dilakukan pengukuran nilai histogram yang terdiri dari mean, skewness, kurtosis dan nilai grey level co-occurencce matrix (GLCM) terdiri dari homogeinity, energy, contrast, correlation, entropy. Nilai yang diperoleh dari kedua kelompok kemudian dibandingkan dengan menggunakan T-test atau Mann-Whitney U Test.
Hasil: Tidak didapatkan perbedaan signifikan secara statistik untuk mean (P = 0,098), kurtosis (P = 0,914), skewness (P = 0,775), Homogeinity (P = 0,943), Energy (P = 0,745), Contrast (P = 0,891), Correlation (P = 0,517), Entropy (P = 0,286) antara kelompok KNF dan NFK
Kesimpulan: Tidak terdapat perbedaan signifikan dari nilai histogram (mean, skewness, kurtosis) dan nilai GLCM (homogeinity, energy, contrast, correlation, entropy) antara kelompok KNF dan NFK.
.....Background: : Indonesia is the second country with most nasopharyngeal carcinoma (NPC) cases in the world. CT is still the initial modality for detecting NPC. However, CT imaging of NPC are sometimes difficult to distinguish from chronic nasopharyngitis (CNP), especially with small tumor size. Texture analysis (TA) is a mathematical method used to analyze the distribution and relationship of gray level pixels of an image. TA is widely studied in head and neck oncology to distinguish the characteristics of tumors, benign or malignant, assess response to therapy and predict patient prognosis.
Methods: This is a cross-sectional comparative study. There were 27 NPC samples and 18 CNP samples with ROI performed on the tumor region, then measured the histogram value consisting of mean, skewness, kurtosis and the gray level co-occurrence matrix (GLCM) consisting of homogeinity, energy, contrast, correlation, entropy. The values between two groups were then compared using the T-test or the Mann-Whitney U Test.
Results: There were no statistically significant differences for mean (P = 0.098), kurtosis (P = 0.914), skewness (P = 0.775), Homogeinity (P = 0.943), Energy (P = 0.745), Contrast (P = 0.891), Correlation (P = 0.517), Entropy (P = 0.286) between NPC and CNP group.
Conclusion: There were no significant difference for histogram values (mean, skewness, kurtosis) and GLCM values (homogeinity, energy, contrast, correlation, entropy) between the NPC and NFK groups.