Validitas dan reliabilitas optical coherence tomography segmen anterior dalam menilai derajat inflamasi bilik mata depan secara kuantitatif pada pasien uveitis = Quantitative measurements of anterior chamber inflammation in uveitis patients: Assesing the validity and reliability of anterior segment optical coherence tomography

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Abstrak

Latar belakang: Uveitis merupakan sekelompok penyakit yang ditandai dengan adanya inflamasi intraokular. Derajat inflamasi bilik mata depan yang dinilai secara semi-kuantitatif berdasarkan penghitungan sel dan flare, digunakan untuk menentukan keparahan penyakit, efektivitas terapi serta pemantauan jangka panjang pada uveitis anterior dan panuveitis.
Tujuan: Menilai validitas dan reliabilitas optical coherence tomography (OCT) segmen anterior dalam mengukur inflamasi bilik mata depan secara kuantitatif sebagai metode alternatif dari standar baku pengukuran semi-kuantitatif, Kriteria SUN.
Metode: Studi ini adalah studi potong lintang, prospektif. Penghitungan jumlah sel menggunakan optical coherence tomography dengan bantuan ImageJ dilakukan oleh dua penilai yang berbeda. Hasil: Sebanyak 30 mata yang berasal dari 24 pasien diikutkan dalam penelitian. Sebanyak 80% pasien menderita panuveitis dengan tuberkulosis sebagai etiologi tersering (50%). Uji kesesuaian Cohen’s kappa pada protokol multiple line scans didapatkan nilai 0,352 (p=0,000) sedangkan protokol single line scan didapatkan nilai -0,218 (p=0,032). Uji korelasi Gamma protokol multiple line scans didapatkan nilai rho=0,595 (p=0,002) sedangkan protokol single line scan didapatkan nilai rho=-0,210 (p=0,313). Nilai inter-rater protokol multiple line scans menunjukkan hasil sangat baik sedangkan protokol single line scan baik (0,986 dan 0,892, p<0,001).
Kesimpulan: OCT segmen anterior menghasilkan data kuantitatif sel inflamasi pada bilik mata depan. Jumlah sel bilik mata depan yang dihitung menggunakan OCT segmen anterior protokol multiple line scans menunjukkan korelasi sedang dan kesesuaian minimal dengan Kriteria SUN.
.....Background: Uveitis is a group of diseases characterised by intraocular inflammation. The evaluation of anterior chamber inflammation, conducted through a semi-quantitative assessment involving cell counts and flares, plays a pivotal role in determining disease severity, assessing therapeutic effectiveness, and facilitating long-term monitoring in anterior uveitis and panuveitis cases.
Purpose: To evaluate the validity and reliability of anterior segment optical coherence tomography (AS-OCT) as a quantitative measurement tool for assessing anterior chamber inflammation. The objective is to explore its potential as an alternative method to the standard semi-quantitative measurement defined by the SUN Criteria.
Methods: A prospective, cross-sectional study was conducted for this purpose. The anterior chamber cell numbers were quantified using anterior segment optical coherence tomography, assisted by ImageJ, and assessed independently by two raters.
Result: The study included a total of 30 eyes from 24 patients. Panuveitis was observed in 80% of the patients, with tuberculosis identified as the predominant etiology (50%). The Cohen’s kappa test, conducted

on the multiple-line scan protocol, yielded a value of 0.352 (p=0.000), while the single-line scan protocol showed a value of -0.218 (p=0.032). The Gamma correlation test for the multiple-line scan protocol demonstrated a value of rho=0.595 (p=0.002), whereas the single-line scan protocol had a value of rho=-0.210 (p=0.313). Inter-rater values for the multiple-line scan protocol indicated excellent agreement (0,986, p<0.001), while the single-line scan protocol showed good agreement (0.892, p<0.001).
Conclusion: OCT yielded quantitative data on anterior chamber inflammatory cells. Quantifying anterior chamber cells through the multiple line scan protocols of anterior segment OCT showed a moderate correlation and minimal agreement with the SUN Criteria.