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The Agreement Between HRT And OCT On Optic Disk Area Measurements

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Purpose: To evaluate the agreement between HRT and OCT on optic disk area measurements.

Methods: 87 glaucomatous eyes were selected by HRT II measurements with different optic disk areas. 87 images of OCT Stratus and HRT measurements of optic disk area (ODA), rim area, cup area and cup to disk area ratio were taken. The difference between the mean of optic disk measurements by the two devices was evaluated by Student t-test. The Bland & Altman plot and Lin concordance correlation coefficient were used to assess agreement between the two devices.

Results: There was a significant but not clinically relevant difference between the mean of ODA measured by HRT ($2,22 \pm 0,62 \text{ mm}^2$) and OCT ($2,49 \pm 0,51 \text{ mm}^2$); $p < 0,0001$. No statistic difference was found in rim area analysis measured by HRT ($1,39 \pm 0,41 \text{ mm}^2$) and OCT ($1,29 \pm 0,47 \text{ mm}^2$); $p = 0,097$. The cup area analysis showed a significant higher values on OCT ($1,23 \pm 0,72 \text{ mm}^2$) than HRT ($0,82 \pm 0,54 \text{ mm}^2$); $p < 0,00001$. Cup to disk area analysis showed a significant difference between the mean of HRT ($0,36 \pm 0,23$) and OCT ($0,47 \pm 0,22$); $p < 0,00001$. In addition, a good coefficient of agreement (Lin coefficient $r = 0,7874$, 95% Confidence interval (0.6459 to 0.8765) and Bland & Altman plot of agreement for the disk area was present.

Conclusion: Although optic nerve area measured by OCT depends on the automatic definition of the retinal pigment epithelium ends, and this is not the case on HRT, the two devices had similar values concerning optic disk parameters with slightly values higher on OCT.