Retinal blood vessel tortuosity

What is retinal blood vessel tortuosity (RBVT)?

Hart (1999) defined that RBVT as a qualitative parameter used by clinical ophthalmologists to indicate how much winding blood vessels present.1 Hart also given classification based on it RBVT and typically scale between 3-5.1

Diagnostic importance RBVT?

List of the clinical condition the altered RBVT reported in literature

1. Retinopathy of prematurity (ROP)1,2
2. Diabetic retinopathy
3. Hypertensive retinopathy
4. Conditions associated with hypoxia
5. Myopia?

Different method to assess the RBVT

Parameter used in quantifying the RBVT

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Author | Method | Parameter | Limitation |  |
| Trucco | distance metric (DM) |  |  |  |
| Wood 18 | properties of superﬁcial femoral artery using DM |  |  |  |
| Smedby [19] | DM \* the number of the inﬂection points found within a vessel |  |  |  |

Reference

1. Trucco E, Azegrouz H, Dhillon B. Modeling the Tortuosity of Retinal Vessels: Does Caliber Play a Role? *IEEE Trans Biomed Eng*. 2010;57(9):2239-2247. doi:10.1109/TBME.2010.2050771

2. Hart WE, Goldbaum M, Côté B, Kube P, Nelson MR. Measurement and classification of retinal vascular tortuosity. *Int J Med Inform*. 1999;53(2-3):239-252. doi:10.1016/s1386-5056(98)00163-4