Comparison between virtual PRL (Preferential Retinal Location) and PRF (Preferential Reading Field): rehabilitative prognosis

Clinical experience of the Low Vision Research Centre of Milan

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Purposes

The PRF (preferential reading field) is a retinal area on which the patient can project the image of a whole reading string: fixation is located on the median superior alignment of the reading string, between the third and the fourth letters. In the low vision patient the PRF is a residual area on which the patient can project at least four letters.

The PRL (Preferential retinal location) is a preferred area of almost 2° in which fixation is possible. In a normal patient the PRL and the PRF always coincide, while in the low vision patient these areas do not always coincide. (1-10)

Knowing the correct position and extension of the reading field is useful to better understand the rehabilitative prognosis.

From previous virtual evaluation we have understood that a reading field which is off-centre by more than 5° or with an amplitude of less than four letters, determines a decline in

... to visualize... the PRL and PRF, in the fovea.

Group B: Homogeneous PRL-PRF, in which the PRL or the PRF are off-centre but in the same direction.

Group C: Heterogeneous PRL-PRF, in which the PRL and the PRF are not only off-centre but also in different directions.

Median BCVA: BCVA: A: 0.21; B: 0.15; C: 0.21) and near visual acuity with the magnifying aids (pts A: 7.35; B: 7.53; C: 8.1) is similar in the three groups.

Reading speed depends on various items such as age, reading field amplitude, magnification education, social class but we cannot find any variation due to mutual position of the PRL and the PRF (words/min: A: 65,60; B: 39,64; BC: 56,47). The delta, instead, could be statistically significant (A: 0.01; B: 2.49; C: 3.45) and also the increase of reading speed after rehabilitation (word/min: A: 33.66 – 54.65; B: 18.07 – 45.65; C: 15.67 – 28.17) is not significant anymore. In conclusion, if a patient, who uses PRL to see their surroundings, it is easier to improve his reading performance if his PRF coincides with his PRL, particularly if it is centred on the fovea, but it could be more difficult if PRL and PRF are on different areas and even worse if they are also heterogeneous.

Conclusions

We think that it is important to state in advance the virtual analysis of the visual field of the low vision patient before rehabilitation, not only to understand the visual magnification and the best visual aid, but also to know all the essential knowledge about reading psychophysics, which could influence rehabilitation prognosis.

Knowing the real position of PRL and PRF, if they are homogeneous or not allows us to plan the visual rehabilitation and the number of visual training sessions which are necessary for the stabilization of fixation in these defined areas.

References