Editorial: An Enigma Variation

The progressive loss of field which occurs in chronic glaucoma has been widely assumed hitherto to be due to raised intraocular pressure (IOP). For example, Duke-Elder and Jay stated¹: 'It is undoubtedly true that the defects in the field are generally related to the height of the tension . . .'. The statement is not, however, supported by a reference, a surprising omission in a work of the calibre from which the quotation is taken.

The first long-term prospective study of the relationship between IOP and field on a quantitative basis was reported on in 1968,² though other authors had attempted to study the problem but without scoring the fields in a numerical form suitable for statistical analysis.^{3,4} None of these publications were able to show incontrovertible evidence of a relationship between pressure and field loss, but a later publication⁵ indicated that there might be an association between field loss and peaks of IOP rather than higher average values, and still further evidence of a weak association was forthcoming in the Lang Lecture in 1986.⁶ However, in the meantime Krakau, using a sophisticated system of scoring 'decay' of field was casting serious doubt on the cause-effect relationship between IOP and field decay.⁷

In the present issue we have a paper from the Vancouver group which comes to the startling conclusion that there is a negative correlation between IOP and 'scotoma mass.' The follow-up in this (retrospective) study appears to have been relatively short, but nevertheless it would seem fair to assume that the scotoma mass would tend to increase with time (though the paper makes no categorical statement to that effect).

This leads us to an amazing conclusion. If the average IOP for the 2-3 readings before and the one at the time of perimetry are negatively correlated with scotoma mass, and if the scotoma mass increases

with time, then there seems to be no way of avoiding the conclusion that the IOP should decrease with time. Unfortunately this information is not separately presented in the study, though there is one figure suggesting that the majority of patients did indeed have a negative IOP time slope.

What can we conclude from this? At this stage not very much, but one legitimate speculation is possible. If the patients were under treatment, it is possible that the majority might well have a negative IOP time slope because of the treatment. But this unfortunately does not tell us if the treatment was doing anything so far as the field was concerned. In a different group with a flat IOP time slope it might have been found that increase in scotoma mass was even greater. There are of course further problems in sampling where the very variable results of attempts to quantitate visual fields are concerned – as Krakau has recently warned.⁸ Thus the enigma of pressure in its relationship to field loss is still very much with us and looks likely to remain so for some time to come.

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References

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