INTERPRETATION OF THE ELECTRO-OCULOGRAM OF PATIENTS TAKING CHLOROQUINE

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ABSTRACT

No significant differences in initial EOG were found between a group of RA patients using chloroquine, a group treated with gold and a normal group. Most probably this is due to the low dosage of chloroquine which is used nowadays.

After six months, EOG values in the chloroquine group were reduced, while they were increased in the gold group.

The differences were statistically significant, but must be carefully interpreted, because in the group of normal subjects the EOG was lowered as well.

INTRODUCTION

It is well-known that chloroquine may cause irreversible damage to the eye, resulting in a so-called ‘bull’s eye’. To prevent this, it is advisable to check these patients regularly. From a previous study it appeared that the EOG was the most sensitive method of control (van Lith et al., 1976). In an early stage of intoxication, the EOG reacts with a decrease in the light rise of its standing potential. Since this decrease is reversible, provided the treatment is stopped at an early stage, the EOG test seems to be a valuable tool for the early detection of chloroquine intoxication.

Because of the high inter-individual variability of the EOG, however, the problem of correct interpretation arises. This problem can be circumvented by judging the changes in the EOG during therapy (van Lith et al., 1976). But even then, the intra-individual variability will remain. This intra-individual variability appears to be especially high in patients with rheumatoid arthritis (RA), for which disease chloroquine is often administered. The reason is that this disease itself exerts an influence on the EOG. An exacerbation causes a decrease in the light rise of the standing potential, while an improvement causes an increase (Pinckers et al., 1973).

These effects, of course, make the interpretation of the EOG complicated. Chloroquine can decrease the EOG by directly affecting the pigment epithelial cells of the retina, but can also increase it by improving the RA. The
various influences of chloroquine, RA and another medicine, gold, are schematically represented in the figure.

To gain more insight into these mechanisms, two groups of RA patients, one treated with chloroquine and the other with gold, were compared with a group of normal individuals of the same age. The purpose of the investigation was to determine how far the diametrically opposed effects as mentioned might influence our decision relative to the continuation or termination of the therapy.

METHOD

The three groups of patients consisted of a group of 23 RA patients using chloroquine therapy, a group of 21 RA patients, treated with gold, and a group of 10 normal subjects, having no clinical symptoms of RA or any eye disease. This last group served as a control. There were no significant differences in age or visual functions between the groups. All patients were already assigned to treatment with gold or chloroquine before the study started. Patients and normal subjects were seen twice at an interval of six months.

RESULTS

There were only slight differences between the three groups for the average values of the initial EOG, the gold group having the lowest values (Table 1). These differences were neither for the right eye (RE), nor for the left eye