MERCURIAL PRESERVATIVES IN EYE-DROPS*

OBSERVATIONS ON PATIENTS USING MIOTICS CONTAINING THIOMERSAL

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It was reported recently by one of us (Abrams, 1963) that the long-term instillation of miotic drops preserved with phenylmercuric nitrate 0.004 per cent. (PMN) leads to the development of the appearance of mercurialentis in a significant proportion of patients. In this connexion it was suggested that observations of patients using drops containing other mercurial preservatives would be of interest.

An opportunity for such examination has been presented by the Glaucoma Clinic of Whipps Cross Hospital where the miotics dispensed are preserved with Thiomersal 0.005 per cent. (Klein, Millwood, and Walther, 1954).

Twenty-one cases of glaucoma were examined on the slit-lamp. All had at least one unoperated eye that had received continuous miotic therapy. This took the form of pilocarpine 2-4 per cent. used two to four times a day for a period of anything from four to ten years. In none of these patients has there been any convincing suggestion of mercurialentis. Some have shown a very slight yellow tinge of the reflex from the anterior lens capsule, but this may occasionally be observed in normal persons if the slit-lamp beam is to the nasal side of the microscope.

Apart from the fact that they both contain mercury, phenylmercuric nitrate and Thiomersal are chemically and physically dissimilar:

Thiomersal is much more soluble than PMN and probably more stable.

It is also stated that PMN solutions deposit metallic mercury after a period of time (Osol and Farrar, 1955). The reason for this is uncertain, but it may be due to the partly inorganic bonding of the mercury in PMN, whereas in Thiomersal the metal has solely organic and perhaps more stable bonds. This precipitation of mercury could account for the development of mercurialentis in patients using miotics preserved with PMN as distinct from those preserved with Thiomersal.

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We cannot be absolutely sure that Thiomersal is quite free from the undesirable effect that PMN has, because our number of cases is not very large. Nevertheless, this preliminary note is given to encourage the scrutiny of the anterior lens capsule in any patient receiving mercurial-preserved miotics for a great length of time.

Summary

Twenty-one patients on long-term miotic therapy with drops preserved by Thiomersal showed no significant evidence of mercurialentis. This is in contrast to the findings in patients using miotics preserved with phenylmercuric nitrate.

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