MERCURIAL PRESERVATIVES IN EYE-DROPS*

OBSERVATIONS ON PATIENTS USING MIOTICS CONTAINING THIOMERSAL

BY

J. D. ABRAMS, T. G. DAVIES, AND M. KLEIN

Institute of Ophthalmology and Whipps Cross Hospital, London

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:

\[
\text{C}_6\text{H}_5\text{Hg OH. C}_6\text{H}_5\text{Hg NO}_3 \\
\text{PHENYLMERCURIC NITRATE}
\]

\[
\text{C}_2\text{H}_5\text{HgS C}_6\text{H}_6\text{COO Na} \\
\text{THIOMERSAL}
\]

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.

* Received for publication July 22, 1964.
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.

**REFERENCES**


MERCURIAL PRESERVATIVES IN EYE-DROPS: OBSERVATIONS ON PATIENTS USING MIOTICS CONTAINING THIOMERSAL

J. D. Abrams, T. G. Davies and M. Klein

Br J Ophthalmol 1965 49: 146-147
doi: 10.1136/bjo.49.3.146

Updated information and services can be found at:
http://bjo.bmj.com/content/49/3/146.citation

These include:

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/