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in plastic iritis





## THE THERAPEUTIC VALUE OF HYDROBROMATE OF SCOPOLAMINE IN PLASTIC IRITIS.

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THE findings in this brief paper, which are but a few of a series of results that represent nearly two and one-half years' careful clinical research with this drug, are limited to a study of its therapeutic action upon this form of special ocular disease. These have been published separately because it has been found that in this class of cases the drug proved itself as one of the most efficacious and one of the most valuable agents that has been employed for quick mydriatic purposes and prompt reparative action. Both the private and public practices of the writer have been freely drawn upon to study the different effects of the drug, and quite a number of cases, especially the private ones, which, without exception, have been personally studied in every detail, have been submitted to varying modes of administration, until now, after a most extended experience, the results as given below are unhesitatingly offered.

Not endeavoring in this communication to solve the problem as to the absolute identity of the drug, either in its isomeric relations, as has been attempted by some, or to the question of its being but an admixture of the two bases hyosine and atropine, as has been done by Lewin,<sup>1</sup> or even as yet to compare its physiological workings,<sup>2</sup> which are said by others to be identical<sup>3</sup> with other alkaloid products in the tropine series, the writer has here sought only to determine its relative workings upon inflamed iris-tissues, especially in the incipiency of the disturbance and when the inflammatory reaction has been thoroughly established.

The writer prefers the hydrobromate salt to the hydrochlorate, as he has found the former to be less irritating, and the solution, especially if prepared with a small quantity of boric acid, as Murrell<sup>4</sup> has suggested,

<sup>1</sup> Deutsche medicinische Wochenschrift, 25 April, 1895, S. 269.

<sup>2</sup> The writer expects to engage himself in a series of experimental studies that are intended to place the drugs duboisine and hyosine in the same relation with atropine as these experiments with scopolamine. He also intends to make investigations as to the actions of definitely graded mixtures of the drugs with atropine.

<sup>3</sup> Peters: Centralblatt für praktische Augenheilkunde, 1893, S. 500.

<sup>4</sup> Annals of Ophthalmology and Otology, October, 1895.

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to remain most certainly free from any fungoid degeneration for greater periods of time, even for several weeks.<sup>1</sup>

Whilst personally employing the drug the writer has never seen any serious general intoxicant effects<sup>2</sup> even where he has found it necessary, on account of slow and difficult endosmosis through the infiltrated tissues of the cornea and incomplete action upon the rigid and tense structures of the iris, to repeat the instillation several times during the course of an hour. He attributes this in a measure not only to the lessened absorption of the drug, but to the care that he takes to have the lower lid everted and the lower canaliculus pressed upon while the fluid is slowly dropped upon the superior limbus of the cornea. His own experience is that it acts much more quickly upon inflamed tissues than stronger solutions of atropine, and that in accordance with the experience of Raehlmann,<sup>3</sup> Bellarminow,<sup>4</sup> and Grossman,<sup>5</sup> cocaine primarily employed (or, as he has tried in some instances, conjointly) markedly increases the promptness of one of the most important desired-for results, the breakage of freshly formed synechia.

In the great majority of cases the best and most decided results were obtained by a double instillation of a one-tenth of a 1 per cent. solution at a minute or two interval, rather than by a single instillation of one drop of a one-to-five hundred solution (*i. e.*, one-fifth of a 1 per cent. strength). In each instance the dose employed was the same; but in the former plan, where it was divided into two administrations, the amount received by the organ was most certainly greater, as was proved by the result.

In regard to its slight anæsthetic qualities upon the cornea, referred to by Gutmann,<sup>6</sup> the writer cannot give answer affirmatively or negatively, as his cases presented so many types of irritation and inflammation that no dependence could be paid to this one of the most uncertain subjective findings; to him the subject still remains *subjudice*.

As to the certainty of its effect upon intraocular tension as clinically studied by Grossman,<sup>7</sup> Hobbs,<sup>8</sup> Ritchie,<sup>9</sup> and others,<sup>10</sup> the writer, as previously hinted, is engaged in determining this question in another and more scientific way. He can, however here assert that he has never had

<sup>1</sup> In private work, where everything is under personal supervision, the writer has preferred to make repeatedly fresh solutions of all such drugs.

<sup>2</sup> In many neurasthenic subjects, especially women, the drug used in the amounts here given for refractive purposes produces a giddiness of a few minutes' duration. The most refreshing somnolence is frequently obtained whilst the patients are waiting for the drug to obtain its maximum effect upon the ciliary muscle.

<sup>3</sup> Klinische Monatsblätter für Augenheilkunde, February, 1893.

<sup>4</sup> Vrach, 17, 1893.

<sup>5</sup> Gazette médicale Sciences de Bordeaux, 17 Mars, 1895.

<sup>6</sup> Therapeutische Monatshefte, März, 1894, S. 126.

<sup>7</sup> Loco citato.

<sup>8</sup> The Atlanta Medical and Surgical Journal, September, 1894.

<sup>9</sup> The Journal of Ophthalmology, Otology, and Laryngology, January, 1895.

<sup>10</sup> Vide Raehlmann, Illig, Lobassow: Revue générale d'Ophthalmologie, Mars, 1894.

any untoward symptoms or seen any bad results from such a cause in all of the cases in which he has employed the drug.

Its great cost,<sup>1</sup> unfortunately, has prevented its more frequent use in the writer's public practice,<sup>2</sup> and thus debarred him from prescribing it as a house-remedy in such cases; but this factor will be necessarily excluded if there should be an increased demand for the drug.

In regard to the permanency of its effects, repeated examination has, in the writer's experience, verified the opinion that although it accomplishes primarily more than is done by four to five times<sup>3</sup> the strength of sulphate of atropine in cases that are seen early and during the incipency of the attack, yet the atropine seems to hold on to its effects for much longer periods of time, thus necessitating the alternate use of the two drugs in gradually lessening amounts and greater intervals after the scopolamine has attained its utmost primary action.

CONCLUSIONS. 1. Hydrobromate of scopolamine is of the greatest value in the local treatment of the various forms of plastic iritis.

2. The primary reparative action and quieting power of hydrobromate of scopolamine as compared with those of similar doses of sulphate of atropine in the treatment of plastic iritis are much more promptly obtained with the former than with the latter drug, this being true in the majority of cases even when the latter drug is used in dosages that are equal to quadruple or quintuple the strengths that are employed of the former drug.

3. The duration of the healing and soothing powers of hydrobromate of scopolamine as compared with those of equal doses of sulphate of atropine in cases of plastic iritis does not seem to be so lasting with the former as with the latter drug, this being true in the majority of cases even when the latter drug is used in four or five times the strength-doses as the former.

4. For quick and active measures, which are so eminently necessary in incipient cases of plastic iritis, and during the early stages of inflammatory reaction, hydrobromate of scopolamine is to be preferred to sulphate of atropine.

5. Where prolonged use of such drugs is necessary, as in many cases of the chronic form of the disease with subacute exacerbations, the alternate employment of hydrobromate of scopolamine and sulphate of atropine seems empirically to be the best method of local administration that has been devised.

6. As clinically employed, the best salt of the alkaloid seems to be the hydrobromate; the best method of instillation appears to be that

<sup>1</sup> Vide Schürmayer: *Medicinische Neuigkeiten für praktische Aerzte*, 14 July, 1894.

<sup>2</sup> Seventy-five cents per grain at present writing.

<sup>3</sup> Vide Raehlmann (*loco citato*), and comments by Illig in the *Münchener medicinische Wochenschrift*, 15 August, 1893, xxxiii.

which is accomplished by dropping the solution upon the upper corneal limbus whilst the lower punctum is everted and the corresponding canaliculus is pressed upon; and the most efficient amount to be used at one sitting is two drops of a one-tenth of 1 per cent. strength (1 to 500), repeated, if necessary, as often as three times during the course of an hour, and preceded, when desired, as in some instances where there are much irritation and pain, by two drops of a 2 per cent. solution of hydrobromate of cocaine a few minutes before each instillation of the scopolamine.

*Chlor.*



