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ON THE RELATIVE VALUE OF ATROPINE AND OF MERCURY IN THE TREATMENT OF ACUTE IRITIS.

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During the last two years and a-half I have recorded in a tabular form the cases of acute iritis which have come under my care, in order to test the value of certain views of treatment which I had arrived at from the observation of such cases previously to this period. The exactness of the results is so marked, and the sequence of events so definite, that I feel justified in relating the cases to the profession, and in deducing from them certain principles of treatment, which, if not new, may at any rate not be generally known or acted upon in medical practice.

The table on which these remarks are founded includes all the cases of iritis, *as hereafter limited*, which have come under my care during the period referred to, with the exception of four or five in which I was unable to take notes regularly, or in which the treatment could not be thoroughly carried out. These excepted cases include, as far as I can recollect, only one case of severity which was complicated by infiltration of cornea, and possibly by hereditary taint. Whether the cases are a fair representation of such as ordinarily come before the ophthalmic surgeon, or are exceptionally slight, I cannot presume to say, but such as they are they represent faithfully my own experience.

In speaking of iritis in this paper I exclude from consideration all cases of traumatic origin, all those which are secondary, *i.e.*, caused by extensive adhesions of the iris to the capsule of the lens left by previous attacks, all subacute forms travelling forwards to the iris from the deeper structures, and all cases occurring in children.

These are excluded in order to simplify the inquiry, and restrict it to those acute forms, generally syphilitic, which occur in the previously healthy eye of the adult, and which, if neglected, rapidly endanger vision.

For treating such cases many remedies have been and are still employed—venesection, leeches, blisters, opium, purging, belladonna, turpentine, and mercury. Some surgeons use many of these in combination, others depend upon some single drug, others denounce particular drugs as injurious or useless. Some claim opium as a cure for all cases, with some belladonna is omnipotent, with others mercury and blood-letting are indispensable. In this variety of practice where lies the truth? Can we arrive at it? I trust that the following records will be accepted as an instalment in this inquiry, as they have been carried out in order to test the relative value of atropine and mercury, to ascertain how much each remedy can do, and to determine if possible the most effectual way of employing them. The present table is more extensive than the one originally drawn out, and is in consequence defective in some of the particulars.

[*See* TABLE.]

The cases here recorded appear to me to justify the following conclusions and principles of treatment.

1. Iritis can generally be cured, quickly and perfectly, by atropine alone, or by atropine and mercury combined, without the aid of other remedies. How far opium, blisters, leeches, and venesection aid and accelerate progress I have not yet tested, wishing in the first instance to determine the value of the remedies under consideration, and then to make the results herein obtained a starting point for furthur inquiry.

2. The presence or absence of syphilis does not affect the question of treatment.

3. Many, perhaps one-half, of the cases of iritis, *whether syphilitic or not*, can be cured by *atropine alone.*

4. Those cases in which atropine fails to dilate the pupil in 24 or 48 hours require mercury. In occasional cases the application of leeches renders an eye susceptible of dilatation which at first was unaffected by atropine.

5. When mercury is required it ought to be introduced into the system rapidly.

6. If the system is to be affected by mercury, the mercury ought to be introduced by *the skin*, *not* by the *stomach*. When this drug is introduced by the stomach the digestive powers are depressed at the very period when their healthy function is most needed. When introduced by the skin its full remedial effects are obtained without any impairment whatever of the powers of nutrition. It is my rule never to introduce mercury by the stomach when I wish to obtain rapidly the constitutional effects of the drug.

7. In those cases which require mercury it is sufficient to render the gums slightly tender. When the gums are even slightly affected we have therein evidence of the introduction of mercury into the system in quantity sufficient to turn the scale in favour of health, and carry the case to a successful issue. Therefore the moment we find the gums undoubtedly tender, or beginning to be tender, we may suspend the drug.

8. In most cases the constitutional effects of mercury, indicated by tender gums and improvement of symptoms, may be obtained on the second, third, or fourth days, provided the patient be confined to bed. Absorption of mercury by the skin appears to be *much more* rapid when the patient is confined to bed than when he is allowed to go about as usual.

9. Atropine should be used during the whole period of treatment, except where it causes great pain or increases conjunctival irritation, in which case it may be *temporarily* suspended, or dissolved in glycerine and applied to the skin.

10. That in cases requiring mercury the coincidence of tenderness of gums, of relief from pain, and of the action

of atropine on the pupil is almost absolute, even to an hour or two. Perhaps in cases more severe than those recorded, with great effusion of lymph, the visible effects of atropine may be delayed till a later period. On this point I do not possess evidence.

Let us now inquire how far these conclusions are justified by the cases, and what are the general results of treatment.

Treatment.—Of the 20 cases, eleven were treated by atropine alone, nine were treated by atropine and mercurial ointment combined. In one or two cases a dose of Dover's powder was given when pain was excessive, and in some others salines were given during the application of the mercurial ointment if the skin were hot and not perspiring. Leeches were used, I believe, in three cases only. Two cases had taken mercury before coming under my care.

Question of Syphilis and its relation to Treatment.—Thirteen cases were undoubtedly syphilitic. Of these five required mercury, eight recovered under atropine alone. In seven, syphilis was either denied or not made out. Of these, four required mercury, three were cured by atropine alone.

Rapidity of Mercurial Effects.—Of the nine cases in which mercury was required, one used the ointment 24 hours, a second 24 hours, having previously taken blue pill five days without benefit; a third and fourth used the ointment two days, a fifth and sixth three days, a seventh and eighth four days, the ninth twelve days. So that of nine cases of iritis in which mercury was used, one only required the application of the ointment for more than four days.

Rapidity of Recovery.—Of the 20 cases, seven recovered good sight and pupil within two weeks, one within a "short time," five within three weeks, three within four weeks, three within eight weeks, one within three months, the 20th was relieved from pain with partial recovery of sight.

Perfection of Sight.—Fifteen read No. 1 Jaeger, three (including the second eye of one case) read No. 2, two read No. 6, one could read No. 18.

Perfection of Pupil.—Twelve recovered with a perfectly active pupil free from adhesions, in five there were slight or single points of adhesions, in one there was closed pupil, and in two the condition of pupil is not recorded.

Duration of Disease before Treatment.—In eight the disease had existed not more than a week before coming under my care, in four not more than two weeks, in six less than two months, in one three months, and in one three months and a half.

Condition of Vision before Treatment.—In six cases vision was limited to perception of shadows ; in two it is described as dim ; in two the patient could not read Jaeger No. 20 ; in three the patient read No. 20 ; in two No. 16 ; in three No. 4 ; in two the condition of vision is not recorded.

Disappearance of Mercurial Effects.—In all the cases although no special note is made on this point, the constitutional effects of the mercury passed off in a day or two, and in none do I recollect to have met with any injurious effect whatever which could be traced to the use of mercury.

Relapse of Iritis.—In one case only have I any record of a relapse, and this relapse disappeared rapidly under atropine alone. This fact tends to confirm Gräfe's assertion " that the principal cause of recurrence of iritis is the existence of synechiæ," in other words when iritis is cured with a pupil free from adhesions it seldom evinces a tendency to recur.

Mode of using Atropine and Mercury in Iritis.—Use of Atropine.—On first seeing a case of iritis whatever its degree, I order atropine, of the strength of two grains to the ounce, to be dropped into the eye six times, at intervals of five minutes in the morning, and six times also in the evening. On the following day, if the pain is lessened

and the pupil is beginning to dilate, I conclude that the case is slight, and that atropine alone will cure it. If, however, the pupil is affected, and the symptoms are unabated, I commence mercurial treatment without delay.

Use of Mercury.—The patient is ordered to lie in bed, to wrap round each arm a broad piece of flannel, well smeared with mercurial ointment, and to wear this mercurial bandage until the gums are slightly tender, a small quantity of fresh ointment being added every evening. It is not necessary to *rub in* the ointment. I suspect that the "rubbing in," by producing irritation, impairs the absorbing power of the skin.

Discontinuance of the Mercury.—As soon as the symptoms of the disease begin to abate, or the gums begin to be tender (and these two conditions are generally coincident) the mercury is discontinued. In none of these cases has mercury been given by the mouth (except in two cases which had been so treated before coming under my care), and in none has the ointment been rubbed in.

Discontinuance of the Atropine.—As soon as the pupil is fully dilated, as far as any adhesions will permit, the instillation of atropine is reduced to once or twice a day, and continued at this rate as long as redness or tenderness of the eye remains.

This mode of treating iritis coincides very nearly with that described by Gräfe (on Iridectomy, New Syd. Soc. 1859) in using atropine as the main remedy, and mercurial inunction in cases too severe to yield to the atropine. It differs from it in dispensing with *rubbing in*, and with the use of mercury by the mouth. Mr. Dixon, in his early remarks on iritis, condemns belladonna ; in his later work he speaks timidly of its use as an appendage to other treatment. The cases here recorded prove Gräfe to be correct in claiming atropine as the sheet anchor, and in making other remedies subordinate.

William Lawrence and most ophthalmic writers give mercury by the mouth, and do not mention its introduc-

tion by the skin. They speak of the coincidence of the improvement in the symptoms with the first appearance of constitutional effects of the mercury, and make this the signal for the reduction, not as I have done, for the entire omission of mercury.

Blood-letting, local and general, is usually urged as indispensable in iritis. That it is not so I think the foregoing cases prove. I believe, however, that local blood-letting may be a valuable addition to other means of treatment, and that it facilitates the absorption of atropine, and accelerates its effects.

Note on the Action of Atropine.—Writers on iritis generally rest the credit and value of atropine or belladonna on its power of dilating the pupil, in setting at rest the muscular tissue of the iris and ciliary body, and in diminishing the risk of the formation of synechiæ. I cannot, however, but suspect that it does more than this, that it acts as a direct sedative on inflamed and congested tissues, and that much of its power depends upon its influence in contracting the blood-vessels. I cannot in any other way explain the remarkable value of this drug in many cases of ulcer of the cornea, and so-called strumous ophthalmia, a large proportion of which I treat by atropine only. Nor can I explain in any other way the immediate improvement, and rapid and complete recovery by means of atropine alone, of many cases of syphilitic iritis. That atropine does reduce the size of blood-vessels I have no doubt, having several times satisfied myself of the fact by observing the calibre of delicate vessels traversing the cornea before, and shortly, after the instillation of atropine.

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