

vision, and which gave, under the method of treatment to which they were subjected, absolutely unique results as far as I have been able to ascertain. This series included 58 cases which came under Stroganoff's observation in his hospital and private practice during the 3 years 1898 to 1900. In all of the cases included in this series a definite routine treatment was adopted, and the hitherto unheard-of result (that is, in any considerable number of cases) of absolutely no mortality was obtained.

When we consider that the average mortality in eclampsia, treated in hospitals under the most approved methods, whether in this country or abroad, has varied from 20 to 30%, it is obvious either that the cases reported were of an unusually benign type, or that the treatment adopted was markedly more efficient than any previous method, or at least more intelligently applied. Since it is hardly conceivable, however, that among so many cases, covering so long a period of time, there should have been no grave cases, we are led to conclude that the method of treatment adopted must have been responsible to a greater or less extent for the excellent results obtained.

After a careful study of the pathology and symptomatology of eclampsia, Stroganoff formulated a theory of the disease for himself, and instituted a method of treatment to meet the indications which he considered as the essential features of the disease. His views on the nature of eclampsia may be briefly summarized as follows: Puerperal eclampsia is an acute infectious disease which runs an almost definitely self-limited course of a few hours' duration, seldom exceeding 24 and still more rarely 48 hours in length. In the great majority of the cases the principal source of danger to the patient lies in the convulsions, which exert a harmful action on the heart, the respiratory centre, the kidneys and the general condition of the patient. They are often the cause of apoplexy in the fetus, resulting in its death before delivery. Now, it must follow as a natural result that if the convulsions can be eliminated or lessened in severity, the malignant character of the disease will be done away with to a considerable degree, since the resisting power of the organism will probably suffice to nullify the effect of the infective agent when the strain induced by the convulsions is removed. This should, therefore, be the main object of treatment, since we are unable at present to remove the cause of the disease.

In accordance with these views which have just been stated Stroganoff instituted a method of treatment which was designed to accomplish the following results:

(1) The prevention of the convulsions by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal.

(2) The strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations; by securing as large a quantity of oxygen as possible; and by prompt delivery, if,

#### THE TREATMENT OF ECLAMPSIA BY THE METHOD OF PROF. W. STROGANOFF.<sup>1</sup>

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The subject of the treatment of eclampsia has been discussed so often by this society that I feel that an apology is necessary in forcing it once more upon the attention of the members. My excuse is, however, a sufficient one.

Within the last year a remarkable series of cases of eclampsia has been reported by Prof. W. Stroganoff, which occurred under his direct super-

<sup>1</sup> Read before the Obstetrical Society of Boston, Nov. 19, 1901.

with these measures and with a proper diet, the convulsions do not cease.

The treatment is in brief the following: The administration of oxygen during the convulsions; the use of morphia and chloral to control the convulsions; the free use of cardiac stimulants when the heart action weakens; prompt delivery when the convulsions do not yield to treatment; a milk diet; and the avoidance of all methods of treatment which tend to depress the patient.

The administration of oxygen is recommended as the only treatment to be applied during the convulsive attacks. The use of chloroform and ether during the convulsions he considers to be not only ineffective in stopping the convulsion, but also injurious to the patient. Ineffective, because, since respiration is almost suppressed during the attacks, not enough of the anesthetic can be inspired to produce the desired result, that is, the suppression of the given convulsion; and injurious because the use of the anesthetic still further decreases the scanty supply of oxygen which the patient is able to obtain, and which is, on account of the asphyxia due to the interference with the respiration which accompanies each convulsion, the element which is most necessary for the welfare of the patient. The indications during each convulsive attack call for the free administration of oxygen, with precautions to prevent the patient from biting her tongue, and the removal of all weight from the thorax.

If the patient is under observation at the time of the first convulsion, morphia sulphate  $\frac{1}{4}$  gr. is given hypodermically at once, and otherwise as soon as the physician reaches the case, to be repeated in cases of average severity at the end of an hour. In severe cases, that is, if another convulsion occurs within that interval, or if the patient is restless and unruly, the dose should be repeated earlier, while in mild cases, especially post-partum, the interval may be lengthened to 2 hours. In severe cases a third injection of morphia should be given after the same interval.

About 2 hours after the last dose of morphia, or earlier if the patient is restless, chloral hydrate is given (20 to 40 gr.), by mouth if the patient can swallow, otherwise by rectum. Light narcosis is to be maintained for the next 24 hours by the repetition of the chloral at intervals of from 6 to 10 hours without reference to the cessation of the convulsions. If the patient is restless or unconscious the narcosis should be continued for a second 24 hours. If at any time during this interval convulsions recur or threaten, the morphia should be repeated as at first, and the use of chloral should be continued.

Stroganoff believes that the size of the doses of morphia is of great importance, and should never exceed  $\frac{1}{4}$  gr. at a single dose, as serious depressant effect may follow the exhibition of the larger doses ( $\frac{1}{2}$  gr.) recommended by Veit.

If the convulsions do not yield within a reasonable time to the use of morphia and chloral, immediate delivery is indicated, as in 60% of all cases in which the convulsions begin during la-

bor they cease with or shortly after delivery. The method of operative delivery to be adopted should be that which will produce the least degree of shock, as in a patient suffering from the severe toxemia of eclampsia a degree of surgical shock which would be well borne under ordinary conditions may prove fatal.

The further treatment of eclampsia as recommended by Stroganoff may be summarized in a few words: All irritation of the patient, especially of the birth canal, is to be avoided as far as possible. The use of general anesthesia is advised whenever the patient is to be catheterized, a vaginal examination made, etc. A milk diet is to be insisted on. If the patient requires stimulation the use of normal salt solution is advised as the most satisfactory method of stimulation, although the use of brandy and sulphuric ether is advocated for sudden emergencies.

In regard to the sweating treatment, which is so generally employed in eclampsia, Stroganoff takes the opposite view from that which is usually held. He claims, and my own experience, though too limited to be of any particular value, corresponds with his, that the use of hot-air and hot-water baths has in many cases a distinctly harmful effect, acting not only to depress the overburdened heart still further, but also to increase the nervous irritability and thus favor the recurrence of the convulsions. These disadvantages more than counterbalance the gain to the patient which is due to the comparatively limited excretion of toxins which takes place through the skin. A warm bath to cleanse the skin has, on the other hand, no harmful effects, and in many cases produces a distinctly soothing effect on the patient.

Within the last few months 9 cases of eclampsia have been treated at the Boston City Hospital and at the Boston Lying-in Hospital, more or less in accordance with the principles advocated by Stroganoff, that is, morphia and chloral were employed as advised by him, but in only 5 cases was his method followed in detail, that is, to the exclusion of the depressant sweating treatment. The cases are too few in number to throw any light on the true value of the treatment, but the results proved satisfactory in the main, post-partum cases in particular yielding readily to the sedative treatment.

It is not worth while to report the cases in detail, but such general points of interest as the cases furnish may well be studied. In 8 of the 9 cases the convulsions ceased promptly as soon as the second dose of morphia was administered. In the ninth case the treatment was not begun until late, as the patient did not come under observation until she had had several convulsions, and the sedative treatment had apparently no effect in checking them.

Among the 9 cases 4 were post-partum and 5 were ante-partum. In all the post-partum cases the convulsions ceased promptly and the patient recovered. In the ante-partum cases the convulsions ceased promptly in 4, while in the fifth the

treatment had no apparent effect on the convulsions, which continued and increased after delivery in spite of all the measures taken to prevent them, the patient dying about 24 hours after the first attack.

In 4 cases the details of the Stroganoff treatment were not carried out, the only change from the usual sweating treatment being the use of morphia and chloral. Three of these cases were ante-partum and one post-partum. Only 1 of the ante-partum cases required delivery at the time of the attack, labor having begun after the onset of the convulsions. In this case the convulsions ceased promptly, but the patient died 3 or 4 days later of cardiac complications, the strain of the convulsions having induced acute dilatation of the heart. The other ante-partum cases yielded promptly to treatment, and both patients recovered, but both miscarried within a few weeks. The post-partum case made a normal convalescence. Of the 5 cases in which the attempt was made to follow out the details of the Stroganoff treatment, 3 were post-partum and 2 ante-partum. In the 3 post-partum cases the use of morphia and chloral stopped the convulsions promptly, and all of the cases recovered without further complications. Of the 2 ante-partum cases 1 recovered and 1 died. The patient who recovered had no convulsions after treatment was instituted, and did not require operative delivery, but on the third day from the beginning of the attack delivered herself of a dead child. Her convalescence was complicated by a protracted attack of bronchopneumonia, but she eventually made a complete recovery.

The second case did not come under observation until she had had 4 convulsions, and the use of morphia and chloral had no apparent effect on the convulsions. The patient was in labor at the time she entered the hospital and delivered herself of a living child soon afterwards, but the convulsions steadily increased in frequency and severity, and the patient died about 24 hours after the onset of the symptoms.

These cases do not, of course, furnish sufficient evidence to judge of the true value of any method of treatment, but certain conclusions may be deduced from them which may prove to be valuable:

(1) In post-partum eclampsia the use of morphia and chloral in combination seems to have a distinctly beneficial action in controlling the convulsions.

(2) In ante-partum eclampsia the treatment is less efficient than in the post-partum form, but the course of the disease seems to be altered for the better in the majority of the cases.

(3) Although the treatment has not given as good results in our cases as in those reported by Stroganoff, a further trial is indicated, since our results have not been any worse than under any other method of treatment which has been tried, and further experience may disclose errors in the application of the treatment which may be remedied to good effect. At any rate, a method of

treatment which has proved so efficient in the hands of its originator should not be abandoned until it has had a more thorough trial than we have been able to give this one as yet.