

TRIAL OF
SALINE VENOUS INJECTIONS
IN
MALIGNANT CHOLERA

AT THE DRUMMOND-STREET HOSPITAL,
EDINBURGH.

(Communicated by the Author.)

To the Secretary of the MEDICAL BOARD,
MADRAS.

SIR,—IN my last communication for the information of the Board on the subject of injecting saline fluids into the circulation during the stage of collapse in cholera, for which purpose I forwarded an improved apparatus, I mentioned the extraordinary effect it had in rousing the whole system, and acting upon the patient almost as a charm. I may now state that Dr. Mackintosh and myself have for a considerable time given the practice a fair trial at the Drummond-Street Hospital in this city, and have apparently snatched many, as it were, from the very jaws of death.

The very remarkable effects of this remedy require to be witnessed to be believed. Shortly after the commencement of the injection the pulse, which was not perceptible, gradually returns; the eyes, which were sunk and turned upwards, are suddenly brought forward, and the patient looks round as if in health; the natural heat of the body is gradually restored; the tongue and breath, which were in some cases at the temperature of 79° and 80°, rise to 88° and 90°, and soon become natural; the laborious respiration and oppression of weight at the chest are relieved; the sickness, thirst, and inclination to vomit, cease; the deafness vanishes, the obscured vision becomes clear, and the whole countenance assumes a natural, healthy appearance; the tongue, which the patient sometimes describes as having fallen back into the throat, resumes its proper place, and the vox cholericæ is heard no more. The whole feelings of the patient become for a time natural, they express themselves as being perfectly easy, and feel as if in a new world, and their spirits are exhilarated, and they converse familiarly upon all matters connected with themselves or their families.

Unluckily, this favourable state does not remain long, and very often within three or four short hours, we find them sunk again into a state of collapse or bordering upon it, and the same operation is to be gone through, with perhaps less success. I regret to say, that latterly I have tried it upon

many without the least benefit, except, perhaps, a slight temporary change at the commencement of the operation. I have selected for the Board a case from my journal, in which 612 ounces of saline fluid were injected, and the patient is up to the present time continuing well. This case shows that the practice is not only perfectly safe, but that a great quantity can be thrown into the circulation in a very short time; it also shows how we must persevere in some cases. Had the injection not been repeated a fourth time, the poor woman would to all appearance have sunk within an hour, and after four days it seems that the repetition of the injection alone saved her. During the first fourteen hours after she was brought into the hospital, there were 474 ounces of fluid injected. She was in a complete state of collapse for hours before admission. The litter was sent for her a little after six o'clock p.m., when the porters had carried her partly down-stairs she was seized by the mob, and taken back to her miserable habitation; at half-past seven o'clock Dr. Mackintosh, Dr. Racey, and myself, visited her, when the mob again interfered, and obliged us to make rather a hasty retreat down-stairs, so that another hour and a half elapsed before she was brought to the hospital.

The whole of the animal functions depend so very essentially upon the blood, that the introducing into the circulation, either directly or indirectly, a quantity of fluid resembling the serum which has been abstracted from it by the copious dejections of some of the secretions, is certainly a most rational mode of treating cholera, and being able to produce such rapid changes in the whole system, is very much in favour of the practice. The operation of injecting requires the greatest care and attention, and the patient ought never to be left for half an hour even by the medical attendants afterwards. It brings a patient almost invariably out of the state of collapse, and gives you time to employ other remedies. The effect not being permanent, may arise from the patient labouring under some organic disease at the time of the cholera accession. That the consecutive fever is aggravated by injecting, is to me doubtful. So few cases having recovered in this city from a complete state of collapse by any other means, it is impossible, with our limited knowledge, to do more than hazard an opinion. It must be borne in mind, that we have only made use of this remedy in the most desperate cases. Cholera has scarcely been here as an epidemic, and with the exception of a few sporadic cases, it has been almost confined to the debilitated, aged, intemperate, ill-fed, and the most miserable portion of

the community; more particularly to those labouring under some chronic affection. Some few families have been nearly all swept away, who did not come under any of the above denominations. Dr. Mackintosh and myself will shortly publish the result of our practice in the Drummond-Street Hospital.

The disease appears to be different every month, and we know very little more of the curative process now than we did many years ago. For my own part I confess, that after years of attentive observation of the symptoms, and careful watching of the practice of others, as well as my own, I am as far from having a proper knowledge of the disease, as when I was first seized with it on returning from Hindostan after the Mahratta campaign in 1818. I have, however, been collecting facts and making observations upon them, which may ultimately lead to something beneficial. My next communication will, I trust, be more worthy of the acceptance of the Board. I have the honour to be, Sir,

Your most obedient servant,

GEORGE MEIKLE,

Surgeon E. I. C. S. Madras Estab.

39, Albany Street, Edinburgh,

Aug. 3d, 1832.

CASE.

Grace Lindsay, ætat. 38, a washerwoman, residing in Cox's Land, St. Mary's Wynd, was admitted into the hospital, May 28th, 1832. Has been subject to disorder of the stomach and bowels for several years. Two days since she was attacked with diarrhœa, which continued until twelve (noon) to-day, when the characteristic vomiting and purging commenced, followed by cramps, not at first very severe. At half-past seven p.m. she was visited by Drs. Mackintosh, Racey, and Meikle. The cramps were then very violent, with frequent vomiting, urgent thirst, restlessness, &c. She was willing to come into the hospital, but was at this time prevented. At half-past nine p.m. she was admitted; her eyes were sunk, face livid, skin cold, and blue; the respiration hurried and laborious, and the voice of the well-marked choleric character; pulse imperceptible; tongue white and shrivelled; vomiting and cramps severe, with constant jacitation. She was placed on the steam bed, and an enema with turpentine administered. Five minutes after admission the transfusion was commenced, and 9½ lbs. of the following mixture were injected in eighteen minutes:—

Carb. sodæ ℥iv;

Mur. sodæ ℥iv;

Albumen ℥iij;

Aquæ (temp. 105° to 110°) 10 lbs.

After the first three minutes, the impulse and sounds of the heart, before very feeble, became distinct, and the pulse perceptible at the wrist. After the operation, the pulse was 92, and full; face flushed; surface warm; respiration easy; cramps and sickness relieved.

Hab. acet. plumbi gr. iij;

Opii gr. ij; 2dis horis.

Midnight. She continued easy, with a good pulse, for nearly two hours after the injection; since then the thirst has returned, and she has been troubled with severe cramps and vomiting. The surface is now cold and clammy; the pulse almost imperceptible. She complains of excessive heat, and of a sense of fainting; within the last half hour she has become very restless. She has had some wine-and-water for drink, and she expressed a desire for gin-toddy, which she got, but immediately vomited.

At one a.m., May 29. The injection was repeated to the amount of ten pounds of the saline solution, with four ounces of albumen. During the operation her face became flushed, and she fell asleep; her pulse afterwards was 100 and full; she entered into cheerful conversation and expressed herself much relieved, and free from cramps, thirst, and sickness.

Calomel gr. iv;

Pulv. opii gr. i. *M. quam primum sumend.*

Half-past five a.m. Shortly after the last report she vomited a large quantity of watery fluid, and had a stool of the same character. The stimulant effects of the last injection continued for about three hours; for about an hour she was entirely free from cramps, but they have returned, and been very violent since, with much vomiting; the pulse has gradually sunk, and is now almost imperceptible; the face covered with clammy perspiration; her thirst is very urgent, and she complains of debility, and of a sense of heat, although the surface is below the natural standard. She had a draught containing acetate of morphia, but it was immediately rejected. She has had two greyish-coloured liquid stools. She passes urine involuntarily, and in great quantity.

Half-past six a.m. Pulse quite imperceptible; has vomited and purged frequently since last report; cramps very severe; tongue remarkably blanched; surface cold.

At half-past seven the injection was repeated to the amount of ten pounds, with the addition of ten grains of sulphate of quinine. After the operation the pulse was 94, and of good strength; no thirst; face flushed; heat of surface natural; she has

no pain, and says she feels quite revived. Continue

Calomel c. opii. Hab. vin. hollandensis ʒss.

Half-past eleven a.m. The pulse is again imperceptible; vomiting very severe; surface cold; is very restless; continues to pass some urine. The injection was repeated to ten pounds, with the same effects as in the last instance.

Nine p.m. Pulse 80, and irregular; vomiting and thirst continue; purging rather less, but of the same character; skin natural; passes urine.

Calomel gr. iv;

Opii gr. j; nocte meridiæ sumend. Hab. enema commune.

May 30. Nine a.m. Pulse 84; thirst, vomiting, and purging, continue; tongue foul, but rather cleaner than yesterday; thinks she passed urine during the night.

Hab. statim enema sennæ c. sulph. magnesiæ.

Hab. pil. calomel c. colocynth. ij, 2da quæquæ hora.

Nine p.m. Pulse 92; skin natural; has had no vomiting or purging since morning; has passed a small quantity of urine; tongue furred, but cleaner and moister than at last report. Repeat

Pilulæ et enema.

Hab. spir. æth. nitrici ʒi *subinde.*

31. Half-past nine. Pulse 80; has vomited once since last report; had two dark-coloured stools from enema; has passed no urine since last report; complains of slight dry cough. Continue *Pilulæ et sp. æth. nitr.*

One p.m. Pulse 76; tongue cleaner; skin and countenance natural; has had no stool since last report; has passed about ʒxxvj of urine, and is much easier. Continue.

Nine p.m. Pulse 80, feeble; tongue moist, but furred; skin natural; complains much of thirst, and vomits frequently; had one stool since morning; passed urine. Continue *Pilulæ. Hab. vin. rub. ʒss subinde.*

June 1. Half-past nine a.m. Pulse 80, feeble; tongue furred; vomiting was very severe in the night, and she was ordered

Capsici gr. iiij;

Calomel gr. iss;

Opii gr. ss. 2da qq. hora.

After the third or fourth dose it abated somewhat, and is now better; has had no stool; passes urine freely. Continue *Pilulæ capsici. Applic. hirud. xx epigast.*

Nine p.m. Pulse 80; tongue foul; has had a blister applied to her back, and taken three drops of hydrocyanic acid without any effect on the vomiting; has had one stool. Continue *Pilulæ capsici omni hora. Abrad. capill.*

June 2. Half-past four a.m. Pulse 68, and low; a good deal of restlessness and anxiety, with constant moaning. Six pounds and a half of the saline fluid were injected; it had no effect on the rapidity of the pulse, but increased its strength very considerably. To continue the pills, and to have soda powders with ginger.

Eleven a.m. Pulse 78, and full; tongue clean; heat of skin natural; she rested for some time after the transfusion; passed two or three bilious fluid stools; vomits green bilious fluid frequently; urine natural; is altogether much easier and more tranquil. Continue *Pil. et haust. efferv. App. emp. opii epigast.*

Half-past four p.m. The vomiting has continued almost incessantly since last report; it was relieved for a few minutes by ice and the opium plaster, but shortly returned. She complains constantly of thirst, and, latterly, of faintness, and desires her head to be sponged with cold water her pulse is 70, and tolerably full; skin of natural temperature; constant restlessness, and slightly delirious.

At her urgent desire the injection was repeated. Five pounds of water with six drops of liq. mur. morphiæ were thrown in. She seemed to become more collected, and the pulse became fuller; no other change was perceptible.

Half-past nine p.m. Pulse 80, and pretty full; skin natural; tongue cleaner; vomiting has abated since injection; has had one brownish stool; passes urine freely. Omit *Pilulæ capsici. Hab. pil. calomel c. colocynth. ij, 2da quæquæ hora.*

June 3. Three a.m. The vomiting continued almost incessantly till within the last hour, when it seemed to be relieved by a suppository of opium gr. v, and a small quantity of pure brandy. She has had one or two stools, with a good deal of tenesmus, which was also relieved by the suppository; pulse 76.

Six a.m. Pulse 72, and soft; purging and vomiting less since last report. Continue *Pilulæ calomel c. colocynth.*

Twelve. Noon. Pulse 70, pretty full; skin cool; vomiting of dark bilious fluid continues; has passed several slimy evacuations in bed; urine natural. Continue *pilulæ.*

Nine p.m. Pulse 76; tongue clean; skin cool; vomiting continues; there is considerable fulness of abdomen. Continue

Pilulæ. Hab. enema purgans, et rep. post hor. ij si opus sit. App. emp. opii epigast.

Midnight. The enema was returned almost immediately, with some mixture of feculent matter; the vomiting is less urgent, and she has slept a good deal.

4. Ten a.m. Pulse 70; tongue clean;

skin cool; had several dark-fluid motions during the night; passes urine.

Hab. pil. calomel, colocynth, et sulphat. quina.

Seven p.m. Pulse 76; tongue pretty clean; skin natural; has had several dark-fluid feculent stools. Complains of fulness, and slight pain on pressure of the abdomen. Continue *Pilulæ*. *Hab. enema purgans statim.*

5. Eight a.m. Pulse 94; tongue clean; skin natural; has had one bilious motion during the night.

Hab. pil. calomel c. colocynth ij, 2da qq. hora.

Nine p.m. Pulse 68; tongue dry; skin hot; vomiting less urgent; has had one more natural stool; passes her urine in bed. Continue *Pil.* *Hab. enema statim.*

6. Ten a.m. Pulse 68; tongue clean, but dry; heat of surface natural; had no stool during the night; passes urine freely. Continue *Pil.* *Rep. enema.*

Eleven p.m. Pulse 76; skin and tongue natural; has had three fluid feculent motions; mouth slightly sore. Omit *Pilulæ*. *Hab. ol. ricini ℥ss, cras mane.* Reported convalescent.

7. Ten a.m. Pulse 64; tongue clean; rather drowsy; had two stools since last report. *Hab. vin. rub. ℥j, 2da qq. hora.*

Nine p.m. Pulse 76; tongue and skin natural; bowels open. Omit *Medicamenta omnia.*

9. Complains of diarrhœa; in other respects well.

Hab. haust. rhei statim, et post horas tres tinct. opii gtt. xx.

Continued well in the convalescent ward for ten days longer, when she left the hospital. G. M.

Drummond Street Hospital,
Edinburgh.

PREVENTION OF CHOLERA.

To the Editor of THE LANCET.

SIR,—Having had the opportunity of observing this disease in every degree during its progress in Lynn I have endeavoured to ascertain the *juvantia* et *ledentia*, both in diet and medicine.

In July last cholera made its appearance in that part of Lynn which is called "North End," where the fishermen reside, — a situation most conducive to a rapid extension of the disease, and there certainly was (judging from the first few cases) an expectation of such a result. Fearing this, and explaining my views to our dispensary surgeon, whose assiduity in this epidemic I am in justice bound to declare has been unremitting, I ordered that whenever a

case should present itself, every individual residing in the house, or having communication with the patient or family, should take the following medicine.

R *Misturæ cretæ* f. ℥viiss;
Tincturæ catechu f. ℥ss;
Olii menthæ piperitæ, guttasiv. Misce.
Dosis pro ætate adultâ cochlearia duo ampla ter quotidie.

This medicine is one of every-day use in diarrhœa; but the novelty of practice consists in the time of administering it, a time, I grant, very unusual for a medical man to prescribe. Still, under all circumstances I consider the practice defensible, whether we look to the great susceptibility of the whole alimentary canal to morbid impressions at this season, or the importance of inspiring confidence and firmness of nerve, a thing very difficult at the present juncture. It was therefore with no ordinary pleasure that I found this last effect realized. The progress of the disease was soon and sensibly arrested. I can adduce many instances of families, in each of which a death from the most malignant type had taken place, without any of the others (who had regularly taken the medicine) becoming affected with it, or even experiencing premonitory symptoms. I am not so dogmatical as to assert, that this was a sequence resulting from the use of these means, but there seems great probability of it; and I can safely aver, from numerous cases, that no ill consequence has followed the practice. The practice may seem tame and inert, but I venture to anticipate, that a trial of it in any place will be found greatly conducive in checking the progress of this most pestilential disease.

Having closely attended a malignant and fatal case on the 30th of June, I experienced on the following morning some nausea with slight diarrhœa, a peculiar sensation of numbness in my legs, inability in the muscles to perform their function well, and a tendency to cramp. I immediately procured a cretaceous astringent mixture with an increase of creta and gum, over that which the pharmacopœia prescribes, and have taken it regularly more or less up to the present time, without the least inconvenience as regards its constipating effect, having only on two occasions required a simple enema of half a pint of water, in preference to taking any kind of aperient.

The difficulty of procuring reaction under extreme evacuations, induced me to attempt the prevention of the preliminary stage.

During the time this epidemic has prevailed amongst us, the cases of diarrhœa, or diarrhœa combined with vomiting, have been exceedingly numerous and severe in