

Medical Matters.

THE TREATMENT OF CHOLERA.

From Sylhet, Lower Assam, Mr. R. W. Burkitt, F.R.C.S.I., contributes to last week's *British Medical Journal* the following valuable note on the Treatment of Cholera:—

During the cholera epidemic in this valley in February, March, April, and May, 1908, the death rate among untreated cases cannot have been under 95 per cent., and the interval between the onset of symptoms and death has been on an average ten hours. It has been quite common to see adults die in six or eight hours, and I have seen children die in two hours. The history and death rate of sporadic cases occurring since the epidemic has been almost as fearful.

Any treatment by the mouth is hopeless, as vomiting begins very early immediately after the first onset of diarrhoea, and is very frequent and profuse. For the same reason treatment by the bowel is useless.

Since I began treating all cases, as early as possible, by $\frac{1}{4}$ grain or $\frac{1}{2}$ grain of morphine hypodermically, I have not lost one patient, provided he was injected early and before very profound collapse had set in. Many cases have been injected, with the nappiest results, even when in the most profound collapse—apparently moribund, in a state when vomiting and diarrhoea and almost all signs of life have gone. Children do as well as adults.

After cholera, in a certain number of cases, a typhoid condition ensues which needs careful nursing and dieting; in this state I have lost a few patients owing to the want of these necessaries. The hypodermic injection of morphine is the first of two essential factors in treatment, the other is water in enormous quantities every few minutes while awake from start to finish. If the patient is terribly collapsed I give the morphine first and immediately afterwards saline intravenously. It is useless to give water by the mouth then, as it will only excite vomiting and increase the collapse. I have never seen a case where the injection did not in a few minutes stop vomiting, diarrhoea, colic, and cramps, and give perfect rest, and in the majority of cases sleep from five to eight hours. In most cases immediately the morphine has taken effect and before sleep supervenes the patient asks or makes signs for water and drinks plentifully, mostly without further vomiting; when the patient wakes, the collapse has to a large extent gone, his pulse has returned, his sunken appearance has changed, and he asks for water constantly. He sometimes vomits once or

twice eight to twelve hours after the injection; this is due to the morphine, and is quite different to the vomit of cholera.

In a very few instances I have known the choleraic symptoms to reappear in 24 hours, but on receiving another injection of $\frac{1}{4}$ grain they vanished, and the patients ultimately recovered. This recrudescence was probably due to some indiscretion in diet; I never allow any nourishment for at least 24 hours.

My experience is that after the injection, the more water can be got into a cholera patient either by mouth or by vein, or both, the greater will be his chance of recovery, and the quicker it will be effected. I find plenty of water and hot tea the best diuretics, and the latter very good for collapse. In cases where the injection has been delayed for several hours, and a large depletion of liquid has taken place, urine may not be passed for two or three days. This should cause no alarm, as, if water and hot tea be liberally given, the kidneys always secrete in due time. I have not found strychnine or alcohol of any advantage, and beyond the injection I never give drugs of any kind; afterwards, with regard to diet, the patient is treated as a newly-born infant.

My theory with regard to the value of morphine is that it gives the system a perfect rest, during which it manufactures an anti-toxin. Any one who has watched a bad case of cholera must at once come to the conclusion that, owing to the awful restlessness and pain, a sedative which does not cause further collapse is immediately indicated. Seeing the prodigious quantities of albuminous water vomited and passed by the bowel constantly, one is driven to the conclusion that water in enormous quantities, must be got into the system to replace the loss. Further, in seeing a case profoundly collapsed almost as soon as, or even before, any depletive action has begun, one must again become convinced that it will require great quantities of water to clean a system so saturated with poison.

The following history of a case will show the necessity of keeping the bowels absolutely quiet, and the harm done by any purgative.

A girl 14 years old was injected five hours after the beginning of symptoms with $\frac{1}{4}$ grain of morphine; she was then in an utterly collapsed state; vomiting, diarrhoea, colic, and cramps in the limbs at once stopped; she slept for six hours. She then drank plentifully. In five or six hours the abdomen became distended (tympanites due to morphine), but without causing any marked symptoms or discomfort. The native dispenser

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