

sulphazide 5 c.cm. intramuscularly, sulphapyridine 0.5 gm. two tablets, and neolivacon (liver extract) 2 c.cm. intramuscularly. Diet—'ghole', barley water, alkaline drink with lemon juice and sugar.

On the next day, only sulphapyridine 0.5 gm. and urea sulphazide 5 c.cm. intramuscularly, and from the third to the eighth day, only urea sulphazide tablets were given. The second dose of liver extract was given on the seventh day (3rd April, 1944).

During this period the temperature gradually came down, a vesiculo-papular rash developed, and there was little toxæmia.

On the ninth day of illness, the patient had a slightly higher temperature with hæmorrhages from the mucous membranes, epistaxis, blood with stools. Next day he was given sodium bicarbonate 7½ per cent solution 10 c.cm. intravenously twice daily, and sulphapyridine, liver extract and glucose injections. The fever came down to normal on the next day and the patient remained afebrile subsequently. The intravenous injection of sodium bicarbonate daily was continued till 10th April, 1944, along with sulphapyridine by mouth and glucose intravenously. He was later discharged as cured but with partial aphasia. The marks of decrustation were inconspicuous at the time of his discharge from the hospital.

*Case 2.*—A Hindu male, aged 14 years, unvaccinated, was admitted on 8th June, 1944, on the third day of illness in an unconscious state, with high fever (104°F.) and sub-conjunctival hæmorrhages, a dark red rash over the abdomen and the thighs. On the next day he had developed hæmorrhages around the eruptions. He was given an injection of 10 c.cm. of 7½ per cent sodium bicarbonate intravenously in the morning. In the evening the temperature had come down to 100°F. and the patient appeared to be partially conscious. The diet was the same as described in the previous case. On the next day, sodium bicarbonate injections were deliberately withheld and the patient put on sulphapyridine 1 gm. thrice daily. The patient had high fever 103°F., and the mental state grew worse, the temperature varying between 102°F. and 103°F., and more petechial eruptions appeared over the body. On the fourth day after admission, the intravenous injections of sodium bicarbonate 7½ per cent 10 c.cm. twice a day were recommenced, and only 1 gm. of sulphapyridine was given. (The diet and other treatment were the same all throughout.) By the evening the temperature had dropped to 100°F. and the patient was quite conscious. During the next four days, the patient was given sodium bicarbonate intravenously twice a day, and sulphapyridine 0.5 gm. thrice a day. His general condition rapidly improved. He was given 'half diet' (rice, *dal*, vegetables, milk and fish) from 16th June, 1944, and was discharged on 19th June, 1944. No liver extract was given.

*Case 3.*—A Hindu male, aged 30 years, unvaccinated, was admitted on 13th April, 1945, on the fourth day of illness, in a semi-conscious state, with temperature 100.8°F. The tongue was blackish in colour and very dry. He had minute ecchymotic patches over the forehead, thighs and abdomen. There were signs of catarrh over both lungs. In the evening the patient was found to be unconscious, with a temperature of 104°F., and there were sub-conjunctival hæmorrhages and signs of broncho-pneumonia. He was removed to the isolation wards next morning and put on injections of sodium bicarbonate 7½ per cent 10 c.cm. intravenously twice daily, and sulphapyridine 1 gm. thrice daily. The diet was the same as in the previous cases. Next morning the patient was afebrile and conscious. The pulmonary condition also showed slight improvement. On 16th April, 1945, the dosage of sulphapyridine was reduced to 0.5 gm. thrice a day; it was omitted from the next day. The injection of sodium bicarbonate was continued for a day more (up to the 18th).

The patient remained afebrile from the 16th, the eruptions gradually grew inconspicuous and the lung signs disappeared. Except for general weakness, the patient was apparently quite well on the sixth day after admission. The diet was gradually increased

and he was discharged as cured. There were no marks of any rash on his body.

*Conclusions.*—The above three patients, seriously ill with hæmorrhagic smallpox, an invariably fatal condition according to well-recognized authorities, made a recovery under a regime of treatment that consisted essentially of intravenous administration of sodium bicarbonate and glucose, sulphonamides orally and parenterally where required, along with alkalies, vitamin C by the mouth.

This fact leads the writer to consider that the regime of treatment adopted in these cases is worth further trials in different hospitals in a larger series of cases of hæmorrhagic smallpox in order to assess its value. It is likely that this treatment may also be of value in non-hæmorrhagic cases of smallpox. This point is also worthy of consideration by other workers in charge of larger infectious diseases hospitals in this country.

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## TWO UNUSUAL CASES OF CEREBRAL MALARIA

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THIS year, while treating cases of malaria, I saw the following two cases of cerebral type :

(1) Infant, aged about 1 year, admitted on 26th April, 1945, at 6 a.m. in an unconscious state with persistent convulsions; pulse could not be counted; general appearance toxic; temperature 98.4°F.

On examination, there was stiffness of neck with backward retraction of the head; eyeballs rolled upwards, with contracted pupils, reacting to light; marked lockjaw with dripping of saliva; Kernig's sign positive; spleen enlarged 2 fingers; hæmoglobin value 45 per cent (Tallqvist). Convulsions were epileptiform in character and persisted for 30 hours. Peripheral blood showed abundant B.T. rings and schizonts.

(2) Infant, aged 1 year, admitted on 30th April, 1945, at 8 a.m. Temperature 98°F., and persistent convulsions. Spleen enlarged 2½ fingers; hæmoglobin value 45 per cent (Tallqvist); other symptoms like case (1). Peripheral blood showed abundant B.T. rings and schizonts. Convulsions persisted for 12 hours.

Stool and urine examinations were negative in both cases.

*Treatment.*—After an enema, treatment of malaria with quinine was given parenterally. In both cases the temperature went up after the injections: in the first case up to 102°F. after 12 hours and in the second case 99°F. after 36 hours of admission. Rectal bromides, whiffs of chloroform and icebags were applied. Both the cases showed gradual improvement and recovered.