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### TREATMENT OF TETANUS IN THE HORSE BY MAGNESIUM SULPHATE.

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UNDER the above heading, but with the addition of the word "Success," an article by Captain Dawson, A.V.C., appeared in this journal in 1911. He recorded successful treatment of two cases of tetanus in horses by the simple process of administering saturated solution of magnesium sulphate subcutaneously.

As the necessity of a safe, practicable, and inexpensive treatment was obvious, I determined to experiment on these lines.

The treatment was described as "Dr. Paterson's," but as no reference was given I was unable to trace the literature; and, as far as I have ascertained, it has not been adopted by the medical profession, probably, as has been explained to me by an eminent physiologist, for the reason that magnesium sulphate when injected into human beings is said to have a marked depressing action upon the heart.

I have observed no such action in our subjects. To the end of 1912 I had treated seven cases of tetanus with subcutaneous injections of magnesium sulphate, using doses of 50 cc. of 30 per cent. solution daily for Arab horses and Syrian mules of average weights (250 to 350 kilogrammes).

The usual medicinal treatment was applied, but no serum given. The result was that four cases out of seven recovered.

As this result seemed to warrant further trial, the co-operation of the veterinary staff and other veterinary surgeons was asked for, particularly since tetanus cannot be said to be extremely

common in Egypt and much time must elapse before a conclusion could be arrived at.

To the end of 1920 we have the independent reports of fifty veterinarians on the treatment of tetanus with and without the magnesium sulphate treatment.

From the end of 1912 to the end of 1920 a total of 123 cases of tetanus have been recorded in Egypt in the following subjects: Horses 44, mules 46, donkeys 21, cattle 8, and camels 4.

Sixty-one of these cases did not receive injections of magnesium sulphate, with the result that forty-nine died and twelve recovered, that is, mortality 80 per cent., recovery 20 per cent.

Sixty-two cases were treated by the magnesium sulphate treatment, with the result that forty-two recovered and twenty died, that is, mortality 32·26 per cent., recovery 67·74 per cent.

Four of the cases which received the magnesium sulphate treatment also had a single prophylactic dose of serum, but there seems to be no ground for believing that the serum had any influence on the course of the disease, as two of these cases died and two recovered.

Serum was also given in seven cases which were not treated with magnesium sulphate. Five of these were in equines and four out of the five died. The other two, which recovered, were cattle, in which the susceptibility may be less.

The general method adopted in applying the magnesium sulphate treatment is as follows :—

A 30 per cent. solution of magnesium sulphate is made in ordinary clean drinking water, boiled for ten minutes and filtered through a filter paper into a boiled bottle.

The average dose recommended for the animals under discussion is 50 cc. of the 30 per cent solution, given subcutaneously daily until symptoms disappear, which in successful cases is usually about a week. A fresh seat of injection should be selected each day; for instance, in equines the opposite side of the neck.

The ordinary medicinal treatment is carried out at the same time.

The only ill effect that has been noticed as a result of the injections is that occasionally a local abscess is formed. This, however, is of little importance compared with the loss of the animals from tetanus, and has never led to serious results. On this account strict aseptic and anti-septic precautions should be observed.

In two of the recoveries recorded above the sulphate was given intravenously, and I would recommend it in infirmaries where the necessary appliances are available. The average dose would then be estimated at not more than half of the subcutaneous dose and diluted to 1 per cent.

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