

press of 1-40 carbolic, left on for 4-5 minutes. When the injection was to be made the compress was removed and the area again washed, but with boracic solution (1-20) and sterilized water, in order that the strong antiseptic might exert no deleterious action on the serum. I used a small aspirating syringe, which was very carefully sterilized; the bulb containing the serum was carefully washed off with 1-20 carbolic, and my own hands were surgically clean.

Means taken to prevent the spread of the disease other than anti-toxine immunization :

1. Complete isolation of each ward.
2. Daily examination of throats and immediate removal of suspected cases. In this way we were able to note any change in the condition of each child's throat and isolate the infected ones even before the appearance of the membrane.
3. Isolation of nurses in infected and suspected wards.
4. Gowns and rubber caps to completely cover the body were worn by the nurses in order that they would not carry the disease while off duty.
5. Separate spoons were used as tongue depressors in examining the throats. Each spoon was immediately afterwards placed in a 1-20 solution of carbolic, and subsequently boiled. Had the same tongue depressor been used in all cases it would have been impossible to be certain that the it was not a means of conveying the disease unless it had been soaked in a 1-20 solution of carbolic for at least 20 minutes.
6. All the soiled linen in the infected and suspected wards was rinsed in a strong solution of carbolic before being sent to the laundry, where it was immediately boiled, thereby preventing as far as possible this linen infecting that from other wards.
7. Visitors were refused admission to the hospital.
8. New patients were refused admittance until danger was over.
9. Operations were for a time suspended.

Observations on patients at the time of injection :

1. The absorption of the serum was quickest in the pectoral region, next in the abdominal region, still slower in the thigh, and rather prolonged in the lumbar region.

2. Pain was not marked on the insertion of the needle. Little pain will be caused if a sharp needle is used and rapidly it penetrates the skin. Comparing what pain there was, I think most was experienced by those who had the injection made in the thigh. The most pain was during the discharge of the serum. In the pectoral and abdominal regions this was much less than in the thigh and lumbar regions. I noticed that when the pain was most intense during the discharge of the serum by gently withdrawing the needle a little and changing the direction of the stream much less complaint would follow.

3. Erythema was noticed in three cases. Two cases were very marked and these were on thigh injections, while the third, which was scarcely noticeable, occurred in one in which the serum was inserted in the pectoral region.

4. In the pectoral region the injection is made much less painful by injecting a part subcutaneously, and gently pushing the needle on into the muscle and there completing the injection.

Observations on patients following injection :