

Reaction. This is the feature that is important from the standpoint of the professional nurse; it is during the reaction that your services are required, and here is where previous knowledge, knowing what to expect, and preparedness make your efforts many times more effective, both in serving your patients and co-operating with the doctor. The proper recognition, interpretation and recording of reaction symptoms has largely to do with the result which can be achieved in any given case, and as this work devolves upon the nurse, you will no doubt agree with me that thorough acquaintance with the reaction symptoms is very desirable.

SUBCUTANEOUS INJECTION.

Local Reaction. First, a sensation of fullness and burning followed in 6 to 24 hours by swelling, redness, pain, stiffness and numbness—these vary in intensity from slight to severe; if very severe the L & O compresses will effectually relieve. In a small percentage of cases there is no reaction.

General Reaction. In 30 minutes to 6 hours there comes on a chilly sensation, which may merge into a distinct chill; patients may have headache, nausea, pain in the affected parts, general muscular pain and free sweating; temperature may rise 1 to 5 degrees, pulse may rise 10 to 50 beats per minute. In rare cases vomiting and diarrhoea occur, occasionally stomatitis, and in about 2 per cent. of the cases herpes appears around the mouth; the lips crack and bleed. This may occur after the first dose, though usually it does not appear until after two or three doses have been given. Abdominal pain, severe nausea, repeated vomiting, purging, feeling of great depression, bodily weakness, severe prolonged chills are symptoms indicating too large and too frequent dosage, or accidental injection into a vein.

None of these symptoms are dangerous and all are transitory. They can easily be controlled by regulating the size and interval of dose.

INTRAVENOUS INJECTION.

Local Reaction. There is no local reaction, unless faulty technique permits injection into the tissues around a vein or into the wall of the vein; this usually gives a very painful local reaction requiring local treatment with hot compresses to control it.

Rapid Injection. Where phylacogen is injected into the vein too rapidly, it results, immediately, in pronounced circulatory disturbances, evidenced by a pinched expression, blueness of the lips, a slaty blue colour rapidly

spreading over the face, and attended with disturbed heart action and a rapid, feeble, and at times intermittent pulse, and rapid shallow respiration. These symptoms will never appear if the injection into the vein be made very slowly, allowing from half to three minutes for doses varying from $\frac{1}{2}$ to 10 c.c.

Reaction Symptoms. Usually, within 30 minutes after intravenous injection; the patient feels chilly, a sensation which rapidly becomes more pronounced. He will slip down into the bed, drawing the clothing close around the neck, turn over on his side, flex the thighs on the abdomen; and by this time he will be in a decided chill, which will become more and more pronounced until it assumes the proportions of a severe rigor.

The chill will be so violent at times that the movements of the patient will vigorously shake the bed. The chill usually lasts about 30 minutes, occasionally 60 minutes, and gradually passes off. Headache, nausea, vomiting, pain in the affected part, general pain in the muscles and joints, bowel movement may occur at this time, and more often than with the subcutaneous method. Later the patient becomes drowsy, breaks into a profuse perspiration and falls asleep. When symptoms described under too rapid injections come on at this time and show a tendency to persist, careful record should be made of them, the usual supportive measures instituted, external heat, internal and hypodermic stimulation, absolute quiet, and the attending physician notified.

CONTRA-INDICATIONS.

Subcutaneous Method. There are no contra-indications to the subcutaneous method.

Intravenous Method. Terminal cases, those of patients already dying; hopeless cases; cases with severe and dangerous cardiac involvement; cases with pronounced arteriosclerosis; chronic alcoholics, or those suffering from an acute attack of alcoholic tremens should not be injected intravenously.

Here is where the nurse again has hard work cut out for her, as it is but natural that the physician will use new and wonderful curative agents to treat hopeless and terminal cases and dying patients in the effort to give them every chance, and with the idea of perhaps getting a wonderful cure. It is in these cases where every bit of strength, heat and heart action count for the patient, that the nurse needs to keep doing all the time and watching very closely. I have seen terminal cases, especially of acute infectious conditions, where for some hours after an injection, the careful use of the

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