

OUR PRIZE COMPETITION.

WHAT IS AN INTRAVENOUS INFUSION, AND HOW IS IT APPLIED?

We have pleasure in awarding the prize this week to Miss Hilda Reynolds, Queen's Hospital, Hackney Road, N.E.

PRIZE PAPER.

By an intravenous infusion is meant the introduction of fluid into the veins; the fluid generally injected is salt and water, which is given in severe cases of hæmorrhage, shock, diarrhœa, diabetic coma, and uræmia. Drugs are also introduced into the system in this manner for the cure of certain diseases, *e.g.*, salvarsan (syphilis).

In former years the infusion or transfusion of blood was much used for the treatment of shock and collapse—namely, a patient suffering from the above had injected into his veins blood from the veins of some normally healthy individual. This method is now entirely given up, but transfusion of blood is sometimes, though only in rare instances, resorted to in cases of obstinate hæmophilia.

THINGS REQUIRED FOR A SALINE INFUSION.

1. *General Instruments.*—Scalpel, forceps (dissecting and pressure), aneurysm needle and silk, scissors, skin needle and sutures. With adults, instead of making an incision, a stabbing needle is sometimes used.
2. *Bandage* to tie round the limb, and things for rendering the patient's skin aseptic.
3. *Dressings.*
4. *Infusion Apparatus.*—Two lengths of rubber tubing (joined by glass connection), to the one end of which is fixed a glass funnel or barrel of glass syringe, and to the other a small curved glass or silver canula; if not at hand, a large hollow needle will suffice.
5. *Four Pints of Normal Saline Solution,* 1 drachm common salt dissolved in 1 pint boiled water, at a temperature of 105° F.; to this, stimulants are sometimes added, such as pituitary extract or suprarenal extract.

METHOD OF INTRODUCTION.

Asepsis must be strictly adhered to. The surgeon wears a sterilized overall, and scrubs up as for any other operation. The patient's skin should be cleansed, and painted with 2½ per cent. iodine in spirit. Everything required for the infusion—instruments, apparatus, dressings, mackintosh, &c.—must be thoroughly sterilized.

The vein usually selected is the one at the bend of the elbow; it is made to stand out by tying a bandage round the upper arm, which is removed before injecting the saline. An incision is made obliquely over the vein, a double ligature of silk passed under it, the loop of which is cut, and the distal ligature tied; the vein is then opened, and the point of the canula inserted (the apparatus having been previously warmed and rendered free from air); the proximal ligature is now tied gently round that part of the vein containing the canula, and the fluid allowed to run in slowly—1 pint in ten minutes. The amount usually injected is about ½ pint for a child and 1 to 3 pints for an adult. When the necessary quantity is run in, the canula is withdrawn, the proximal ligature tied, and the wound stitched up and a dressing and bandage applied.

This is the quickest means we have of introducing saline into the system, but it is only used in severe cases, as the method is more complex than that for subcutaneous or rectal infusion. The use of saline infusion is to give the heart more fluid to act upon, and so raise the blood-pressure.

HONOURABLE MENTION.

The following competitors receive honourable mention:—Miss Sarah Backhouse, Miss E. M. Chapman, Miss S. Simpson, Miss E. T. Clark, Miss G. Tatham, Miss D. Maton, Miss E. A. Noblett, Miss M. Mackintyre, Miss G. C. Cheatley.

Miss Backhouse writes that one to two pints of saline solution (prepared by dissolving 80 grs. of pure salt (sodium chloride) in each pint of distilled water at 100° Fahr.) is usually given. Such a solution mingles with the blood, without damaging its cells, and is called normal.

The time required for the introduction of a pint of fluid is fifteen to twenty minutes. If the rate is greater, and the temperature of the solution is too low, rigors and dyspnoea may occur.

Miss Ellen T. Clark writes:—From one pint for a child to two or three for an adult is about the average. When the required amount has been given, the canula is withdrawn, the proximal ligature is tied, and the wound is closed with a stitch, and a dressing and bandage applied.

The rate at which the saline solution is introduced is determined by the medical attendant.

QUESTION FOR NEXT WEEK.

What are the points to be observed in caring for a case of nervous shock?

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