

ELECTROTHERAPY: A NEW AND INTERESTING FIELD FOR NURSES.

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Electrotherapy is now being developed in a number of our larger hospitals, and is showing excellent results. No one could be better suited to be a doctor's able assistant in this line of work than a well trained nurse. Because of her knowledge of anatomy, physiology and chemistry she has a good foundation for the study of electrotherapy and later can apply it intelligently and effectively. In the hands of the doctor, electrotherapy has been elevated to a science where it rightfully belongs, and it would seem almost a duty for the medical profession to develop it to its fullest extent for the benefit of mankind. That much good can be done by it is proven by the fact that the so-called "quacks" have richly commercialised it.

What is electricity? It has been defined as ether waves in a state of unrest. There are a number of definitions that have been given, many confusing and elusive to the average mind. What does electricity do, and how are these results brought about? Seeing is believing. Let us consider a simple example of the action of electricity on water. Water, as we know, is composed of hydrogen two atoms, oxygen one atom. If we place the positive and negative poles of the simple galvanic battery in a basin of water we shall soon see small bubbles collecting around the positive pole, and large bubbles around the negative pole. The electricity passing from the positive to the negative pole has separated the oxygen from the hydrogen. The oxygen having an affinity for the positive pole is collected around that pole and is discharged by means of oxygen bubbles; while the hydrogen, having an affinity for the negative pole, is collected around that pole and discharged by means of the hydrogen bubbles. If we will allow the two poles to remain in the water long enough, the continued action of the electricity will completely separate the simple elements of oxygen and hydrogen and no water will be left. This action of electricity on water is known as electrolysis. These properties of electricity are made use of in medicine to introduce medication into the body through the skin and underlying tissues; this process is known as ionization. There are some sceptical persons who doubt the possibility of this property of electricity. Here

is a good example: take a cloth saturated in a solution of strychnine sulphate and envelop the body of a frog. The frog will remain passive, but if the positive pole of the galvanic current is applied over the area covered with the solution and the negative pole on the leg, the frog will have tetanic convulsions in a few minutes.

The electric current has different effects depending on the apparatus used. We find that it has both a mechanical and a chemical action. The Faradic current is used to produce mechanical action causing contraction of the muscles. In constipation, paralysis, or any condition where muscle stimulation is needed, it has been found beneficial. The galvanic current has a chemical action, and is the only current whose action is different at the two poles. Oxygen is liberated at the positive pole and an acid reaction is produced. Hydrogen is liberated at the negative pole and an alkaline reaction is produced. The positive pole causes the formation of a hard scab, has antiseptic properties, and causes vaso-constriction; the negative pole causes the formation of a soft scab, has no antiseptic properties, and causes vaso-dilation. The positive pole has a sedative effect, and is therefore used in painful conditions; it is also used to reduce inflammation because of its vaso-constricting nature, while the negative pole is used to bring about congestion. The high frequency current is a type of electric current which has a thermic effect, that is, it produces heat. With this current we can produce a small amount of heat sufficient to warm the tissues slightly or enough heat to cause actual destruction of the tissues. Heat may be applied superficially to the tissue or indirectly to the internal organs, when ordered, as to a sluggish liver, a badly functioning kidney or an inflamed appendix. An active hyperemia can be brought about by this means, which helps to restore normal conditions.

In November, 1918, a patient came for treatment who had a cancerous condition of the mouth. The doctor in charge of the department used the electro coagulation method on the affected area and completely coagulated the cancerous tissue. The dead substance was removed with a curette. No bleeding followed, as electro-thermic coagulation immediately causes cessation of surface hemorrhage, but the patient was watched for symptoms of secondary hemorrhage which sometimes occurs. The patient was advised to keep the mouth cleansed with an antiseptic solution, but further treatment was not necessary. At the present time, after the lapse of sixteen months, the patient's mouth is in a healthy condition,

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