NEW DRUG DEVICES FOR WAR PRACTICE

Medicines Incorporated in Collapsible Tubes Solve a Trench Problem.

AN INCH CONTAINS A DOSE

This Plan Is Applicable to Nearly All Needed Remedies, Says London Doctor Who Suggests It.

Dr. F. W. Tunnicliffe, out-patient physician to King's College Hospital and lecturer in therapeutics and practical medicine in King's College Hospital Medical School, London, describes in The Lancet a simple method of administering drugs under war and other strenuous conditions.

"A few days ago," he writes, "I was asked to design a medicine kit to be used by an officer in the trenches for the treatment of ailments among his men. It appears that, generally speaking, the services of a medical man are not available, or at any rate may not be available under the above conditions. The ailments occurring among the men during their occupation of the trenches, which I understand is now about four days, can perhaps, with one exception, be aptly included under the general term minor medicine.

"It was put to me that appropriate medicinal treatment might often prevent a man going on the sick list, or at any rate mitigate the discomfort suffered by him, if, as is invariably the case, he made up his mind to endure much rather than report himself sick. It is not my intention in this note to deal with trench maladies, although a communication upon this subject might be most interesting and helpful. The point, however, which is to be insisted upon is that it is most important to have at hand in the trenches a means of relieving urgent pain.

"The seriously wounded have often to remain a considerable time in the trenches before they can be removed to the rear, and with the hours of darkness getting shorter as the season advances this time will certainly be prolonged. During this period they suffer most distressing pain, which, both from restlessness caused by it and its general effect upon them, is likely to make them less capable of enduring the transit and treatment to which they must subsequently be submitted; it is also a source of extreme distress, if not of actual demoralization, to their comrades. For such cases an active anodyne in massive doses is urgently indicated, and the form in which it is available is not a matter of indifference.

"The conditions obtaining in the trenches render hypodermic injections or rectal injections practically impossible. The absence of water makes solution of any solid preparation and subsequent volumetric measurement difficult; in fact, I am told also practically impossible. Tabloids require a manipulation on the part of the giver and a capacity for swallowing on the part of the patient which cannot always be relied upon as obtaining.

"The best method of which I know at present is the inclusion of the drug to be given in a gelatine or gum stick or in a thin gelatine sheet. In the first case a certain length of the stick is cut off with a penknife and put into the patient's mouth; in the second, an area of sheet is cut off with scissors and also placed in the patient's mouth; length of stick and area of sheet corresponding to a given dose. Muddy hands and indiscriminate knives render even such simple manipulations as these neither as easy nor as clean as they sound.

"Almost the same objection applies to perles, capsules, palatinoids, wafers, &c. Further, since some of our troops are fighting in snowstorms in Flanders and others under a practically tropical sun in Egypt and elsewhere, the melting point of the drug base must be considered.

"The method which I have employed, and which, I think, is capable of wide application, is to prescribe the drug to be given in a semi-solid aromatic base and to inclose the mass in a collapsible tube such as is generally used to contain remedies for external application. The base must be sufficiently viscid to enable a continuous semi-solid jet of substance to be exuded from the nozzle by pressure at the bottom of the tube. By varying the composition of the base in glycerin, bismuth paste, agar-agar, &c., all climatic conditions can be allowed for. There are many kinds of collapsible tubes on the market; those are specially to be recommended in which the screw cap is permanently attached to the neck of the tube. In these the cap cannot be lost.

"With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. The medicinal creams which I have had made so far all have the same dose, viz., one linear inch of the exuded jet. An inch can easily be measured against the last joint of the thumb, and, indeed, can practically always be accurately guessed.

"I made several experiments with different kinds of tubes and was at first greatly tempted to make use of those tubes, of which there are many on the market, with keys at the bottom. I thought that accurate dosage could be obtained by turning the key through definite arcs. This method is, however, quite fallacious, owing to the inconstant calibre of the tubes throughout their length.

"As a constituent of the base I prescribe some aromatic substance which promotes salivation and thus reflexly stimulates swallowing. So far as I am aware any drug, crystalloid or otherwise, or any first dressing of wounds, except hydrogen peroxide, can be administered in this form and in adequate concentration. I have prepared, for instance, a chlorodyne cream containing up to thirty minims to the inch and a morphine cream containing up to two grains to the inch.

"In preparing bases for creams containing crystalloids the viscosity of the cream should be tested after the crystalloid has been added and before the mass is put in the tube, as the addition of even small quantities of a crystalloid considerably alters the viscosity of the cream. For instance, a cream which will give in a collapsible tube a perfectly easily measurable semi-solid jet, will not do so after the addition of hydrochlorate of morphine to it, in the proportion of one grain of the salt to twenty grains—i. e., one linear inch of jet.

"The application to the patient of these medical creams is so simple as to need no description. The inch of jet can be severed from the nozzle of the tube against his teeth, or if he is more or less unconscious it can be dabbed off on the back of his tongue. The cap then can be replaced on the tube."

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