HOW TO USE CREOSOTED HYDNOCARPUS WIGHTIANA (CHAULMOOGRA) OIL MIXTURE

[In Nigeria hydnocarpus oil is imported from India in bulk, is creosoted and sterilised at the Government laboratory, and distributed free to all approved institutions throughout the country. Along with the oil are sent these instructions. It is suggested that other countries in which there are several leprosaria might follow this example, and thus secure a uniform and cheap form of treatment. The Cairo International Congress stated: " No proprietary preparation of hydnocarpus oil or esters, or any other proprietary preparation is more effective that the pure oil and esters prepared in institutions."—Editor].

Storage of oil mixture. The mixture consists of pure hydnocarpus oil with creosote added in the proportion of four per cent; the whole has been sterilized by heat. This mixture is intended for injection, and should be stored in tightly corked bottles in as cool and dark a place as possible. Kept thus it should remain tolerably painless on injection for at least twelve months. Shaking and contact with air tend to make the oil irritant; therefore once a bottle has been opened it should be used up as soon as possible. Supplies of oil mixture should be renewed at least once a year.

Oil to be injected warm. Pure hydnocarpus oil is believed to be at least as effective in leprosy as the esters prepared from it. It has the advantage of being much less expensive, but it has the disadvantage of being more viscid. This disadvantage is partly overcome by adding creosote, but the oil can be made still thinner by heating and injecting at a temperature as high as possible short of injuring the tissues, say at 45 degrees centigrade (113°F). To do this the oil has to be heated to at least 50°C. as it will cool in the process of drawing into the syringe and injection. It is important to make the oil as thin as possible because of the greater ease of injecting, and in order that it may infiltrate the tissues without tearing them.

When a large number of patients have to be injected the oil can be put in a glass flask which is placed in a water bath. Below is placed a paraffin lamp protected from the wind. The wick is regulated to give the desired temperature which is recorded on a thermometer placed in either the water, or preferably the oil.

Method of filling the syringe. A simple method is as follows. Through the cork of the flask containing the oil mixture, insert two thin glass tubes. One tube which is short and plugged with sterile cotton admits air to the flask as the mixture is withdrawn;

the other tube, up which the mixture is drawn, reaches to the bottom of the flask and has the socket of an injection needle firmly fixed with rubber tubing to its upper end. The oil is drawn up into the barrel of the syringe after attaching the nozzle to the needle socket. The nozzle is then withdrawn and a fresh needle fitted to the syringe.

Methods of injection. Injections of oil mixture may be made intramuscularly, subcutaneously or intradermally, but never intravenously. In making intramuscular or subcutaneous injections it is important to divide up the dose, not more than one cubic centimeter being injected at any one point. The needle is inserted through the skin and pushed successively in the directions of the points of the compass, without withdrawing it through the skin; fractional quantities are injected at each point. The warm mixture should be injected slowly (10 seconds to 1 c.c.) so as to give it time to infiltrate the tissues.

Intradermal injections. Intradermal injections are most suitably given in macules, and especially in tuberculoid lesions. One drop to a square centimeter, or three drops to an area the size of a sixpence, is about the right amount to give, an area of 5 to 10 square centimeters being infiltrated with 1.5 to 6 cubic centimeters of the mixture. Intradermal injections may be made with a short guarded needle by multiple punctures; or by means of a long thin needle which is inserted to the hilt horizontally through the skin, the mixture being gradually injected as the needle is withdrawn. Whichever method is used, the sign that the mixture has been injected correctly *into* and not *under* the skin is the appearance of a wheal at the point of injection, or, if the long needle has been used, along the line of injection.

Dosage. Never give injections to patients who are weak or not physically fit. The maximum dose of the oil mixture is ten cubic centimeters once or twice a week, though few patients can stand more than six. It is best to begin with one c.c. and gradually increase the dose. The signs of excessive or too frequent injections are pain at the site of injection for more than 48 hours, a rise of temperature, a gradual increase in the sedimentation rate when tested once a week, any discomfiture or deterioration of the health of the patient. The more physically fit the patient is and the firmer his muscles are, the better will he stand the treatment and the more benefit will result. Remember that great harm can be done by excessive injections.

Sterilization of syringes and needles. This is best done in oil heated to a temperature of 125°—135° centigrade; if hotter, the solder of the needle may melt. At this temperature there is almost instantaneous sterilization. Any bland oil can be used.

A good sterilizer is an enamelled mug with a perforated metal tray fitted to remain just below the surface of the oil. Into the tray the needles are dropped; they can easily be seen and picked out again. All-glass or Record-type syringes can be sterilized by sucking up the oil into the syringe and expelling once or twice. The temperature is regulated by inserting a 200°C. thermometer in the oil, and by placing underneath a lamp similar to that used for heating the injection oil.