

tered depends upon the indications for the transfusion. Patients suffering from shock may be given 500 to 1,000 cc. Judine has given as much as 1,500 cc. at a single transfusion. The use of placental blood is less practical when large amounts are required. The pooling of blood from several placentas may be considered, but this method increases the incidence of post-transfusion reactions. . . .

"The indications for transfusion with conserved blood do not differ from the indications for transfusion with fresh blood. . . . The experiences of observers in widely scattered areas would seem to indicate that the clinical results of transfusion with conserved blood do not differ greatly from those of transfusion with fresh blood. There are, however, distinct disadvantages to the use of conserved blood, including: 1. Great dilution of the blood, associated with the use of certain preservative solutions. 2. A less effective augmentation of the number of red blood cells and hemoglobin content of the blood of the recipient, due to the changes in these respects in the conserved blood. 3. A higher incidence of post-transfusion reactions. . . . Considerable difficulty is encountered in attempting to evaluate the statistical incidence of reactions following transfusion with conserved blood, chiefly because of the variation of criteria used by different workers." Bibliography—15 references.

J. C. M. C.

BROWN, W. E., and LUCAS, G. H. W.: *Further Studies with Ethyl Normal Propyl Ether*. *Canad. M. A. J.* 43: 526-527 (Dec.) 1940.

"Approximately one year ago one of us (W. E. B.) reported on some experimental work carried out in the Department of Pharmacology at the University of Toronto on the anesthetic properties of ethyl normal propyl

ether. The results led us to believe that ethyl normal propyl ether was a safe anesthetic and might be used on the human subject without any ill effect. During the past two or three years the problem of the explosibility of anesthetic mixtures has again come to the fore, and any step which would reduce this danger would seem worth while. With this in view approximately 50 anesthetics have been administered for various operative procedures in which nitrous oxide mixtures were reinforced with a sufficient quantity of ethyl normal propyl ether to allow at least 20 per cent. of oxygen to be used and at the same time to produce adequate anesthesia. As this was the first series of human anesthesia it was naturally felt that one must proceed with considerable caution in spite of the apparent safety which our experimental work had shown. The cases for this reason have therefore been of a nature which did not require any particular degree of relaxation, and sufficient anesthesia could be obtained for the operative procedures by carrying the patients in the lighter phases of the third degree of anesthesia. . . .

"A follow-up was made of all the cases done. This showed that immediately on awakening from the anesthetic, which frequently occurred on the operating table or upon being moved to the carriage, 7 per cent. showed slight vomiting. In the following twelve hours 11 per cent. had some vomiting and after this period of time 2 per cent. still showed vomiting. Eighty per cent. showed no vomiting. For the shorter anesthesia of from 15 to 20 minutes, the quickness with which the patient awoke was quite noticeable very comparable to the recovery from nitrous oxide itself. In the entire series there were 2 cases only which showed any appreciable fall in blood pressure. . . . A comparison of diethyl ether and ethyl normal propyl ether in regard to

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their anesthetic effects and the concentrations of the gas present at various depths of anesthesia was made in a limited number of cats. These experiments were so planned that the rates of production of anesthesia and of toxic concentrations were really comparable. The method was the closed system method employed in this laboratory in many experiments in the past few years. From these experiments the following conclusions may be drawn: Ethyl normal propyl ether is from one and a half times to twice as potent an anesthetic as ethyl ether. Respiration was definitely depressed by the ethyl normal propyl ether in some 4 to 5 per cent. concentrations and by ethyl ether in some 6 to 8 per cent. concentrations. Respiration was more depressed in deep surgical anesthesia with ethyl normal propyl ether than with ethyl ether. Light surgical anesthesia with 2.5 to 3 per cent. of propyl ethyl and 3.5 to 5 per cent. ethyl ether was obtained under comparable conditions. Blood pressure did not fall seriously even when respiration was dangerously slow and shallow, and fell only to about 100 mm. when respiration failed. Artificial insufflation was always successful in resuscitation of these failures. . . .

"When explosive concentrations of ether and of normal propyl ether were used the latter did not seem to explode with as great a force as the ethyl ether did. . . . Experiments showed that the concentrations of ethyl propyl ether during anesthesia were as follows: 1.5, 1.9, 1.8, 1.7." Bibliography—2 references.

J. C. M. C.

BLACK, D. A. K.: *Treatment of Burn Shock with Plasma and Serum*. Brit. M. J. 1: 693-697 (Nov. 23) 1940.

"This paper deals with 8 patients with burns or scalds, of whom 7

were treated by plasma or serum, or both. . . . Routine blood-volume estimations are impracticable, but in patients who have not bled the determination of haemoglobin, one of the simplest laboratory procedures, offers a very sensitive measure of the amount of plasma lost. For approximate calculation of the deficit in plasma volume one is justified in assuming a haemoglobin percentage of 100 and a blood volume of 5 liters, of which 3 liters are plasma. The increased haemoglobin value observed bears the same ratio to the initial value as the initial value for blood volume does to the new blood volume, since the red cell volume remains unchanged. This may be expressed in the formula  $Hb_2/Hb_1 = BV_1/BV_2$ , or, substituting the assumed values,  $Hb_2/100 = 5/(5 - x)$ , where  $Hb_2$  is the observed haemoglobin value after the burn, and  $x$  is the amount of plasma lost. It will be seen that  $x$  can easily be calculated if  $Hb_2$  is known. . . .

"In patients before treatment the main findings were: (a) Increasing shock, with the classical symptomatology. (b) Progressive haemoconcentration. (c) A fall in the plasma volume, and therefore in the total amount of plasma protein, although the protein concentration was often quite high. Evidence was obtained that amounts of plasma protein equivalent to a quarter of the total plasma protein might be lost in a few hours. (d) Plasma chloride was high and bicarbonate low, while blood urea was normal. (e) Serum sodium was low and there was a slight rise in serum potassium. Great clinical improvement followed infusion of dilute plasma and was accompanied by a rise in plasma volume in those cases in which serial observations of blood volume were possible. The results with four times normal serum were much less favourable; one of the three patients treated with concentrated serum died, and the other two