sence of dehydration. Alternation of dextrose with the physiologic solution of sodium chloride obviated the changes in blood dilution, weight gain and occult or visible edema occurring with physiologic solution of sodium chloride alone. The indiscriminate use of intravenous fluids, especially for persons with any cardiovascular defect, should be discouraged and the safeguards suggested be more strictly adhered to." 17 references.

J. C. M. C.

RAPOPORT, BORIS: *Experience with Nupercain for Spinal Anesthesia.* Anesth. & Analg. **19**: 154–156 (May–June) 1940.

In line with the advance in general anesthesia, spinal anesthesia has progressed by the development of new drugs and safer methods of their administration.

Nupercain has been used for several years with great satisfaction both as to length of anesthesia and absence of marked reactions. It is a white crystalline powder readily soluble in water and a derivative of the quinoline group. In solutions of even slight alkalinity the drug decomposes, and so must be kept slightly acid. Repeated sterilization does not decompose the drug.

It is generally accepted that nupercain is twenty times as toxic as procain in man, but has the advantage of being very effective in high dilutions which are much less toxic than the usual solution of novocain.

The technic used is that of Howard Jones as modified by Sebrechts. Morphine grain $\frac{1}{6}$ and scopolamine grain $\frac{1}{200}$ are given subcutaneously one hour preoperatively. With the table horizontal and the patient on his side, the puncture is made in the second, third, or fourth interspace, according to the site of operation. The stylet is replaced after evidence of spinal fluid is obtained, and with the needle in place, the patient is turned carefully on his abdomen.

A dilute solution of nupercain (1:1500) is employed. This is injected in divided doses of 5 cc. at five minute intervals, allowing ample time for observing the reaction on the patient, as evidenced by his appearance, pulse, respirations, blood pressure, and the level of anesthesia obtained. The injection should be done slowly with the nupercain previously warmed to body temperature. If there is no evidence of any undue reaction or the desired level of anesthesia has not been reached, a maximum of 20 cc. is injected.

The patient remains on his abdomen for five minutes after the last dose is given. When turned on his back the patient should be placed in slight Trendelenburg position. The slow injections and Trendelenburg position contribute to the patient's safety and prevent postoperative headaches.

R. E. E.

GIFFORD, J. H., and WILKINSON, F. A. H.: *A Comparative Study of Three Spinal Anaesthetic Agents: (a New Technic for Nupercaine).* Canad. M. A. J. **44**: 128–133 (Feb.) 1941.

"Since the remarkable return to favour of spinal anaesthesia in 1928 a number of spinal anaesthetic agents have been used with varying degrees of success. Of the many agents used three have received the most popularity: novocaine, pontocaine and nupercaine. We present these for comparative study. The following is a report of 696 consecutive spinal anaesthetics. . . .

"Of these, pontocaine was used for 477 operations, nupercaine for 161, and novocaine for 58. . . . By far the greater number of our nupercaine cases were done by the sitting-up method. The usual technic employed differs in no essential from that prescribed by Eth-