LEVINSON, S. O.; JANOTA, M.; WESTON, R. E., AND NECHELES, H.: *Studies on the Therapy of Hemorrhagic Shock: II. The Effects of Iso-Osmotic and of Concentrated Serum and Plasma in Dehydrated Dogs.* Surg., Gynec. & Obst. **77**: 475–480 (Nov.) 1943.

"In a previous paper the therapeutic effects of iso-osmotic and concentrated plasma protein solutions or hemorrhagic shock in normal dogs were compared. In this paper a comparable study on dehydrated dogs is presented. . . ."

"Our results indicate that the decrease in fluid reserves following water deprivation in dogs has a profound influence on the development and treatment of shock following multiple graded bleedings. The dehydrated animals not only developed a more severe shock after less bleeding but also did not respond as well to either iso-osmotic or concentrated serum or plasma than did the normal dogs. More important than this, however, these experiments demonstrate that in dehydrated and in normal animals concentrated plasma protein solutions are definitely inferior to iso-osmotic solutions in the treatment of post-hemorrhagic shock. In all degrees of post-hemorrhagic circulatory collapse, mild to severe, the clinical response, blood pressure, and carbon dioxide recovery, resistance to additional blood loss, and survival times of the dehydrated animals receiving concentrated serum or plasma was decidedly poorer than that of dehydrated normal animals receiving iso-osmotic solutions or of normal animals receiving concentrated solutions." 15 references.

A. W. F.

LOVE, J. G., AND WALSH, M. N.: *Protruded Intervertebral Disks.* Surg., Gynec. & Obst. **77**: 497–509 (Nov.) 1943.

"Spinograms (air "myelograms"), when considered as only a part of the examination and evaluated along with the history and other findings are of definite value, but alone they are often valueless. One of the most important uses for air in this group of cases is to exclude an unsuspected intraspinal neoplasm and the presence of multiple lesions. Air in our experience is practically valueless in thoracic and cervical intraspinal lesions. Its use in our hands is restricted almost entirely to those cases in which a lesion in the lumbar portion of the spinal canal is suspected."

"The technique we employ in dealing with patients suspected of having a protrusion of a lumbar disk is as follows: The patient is given a sedative, usually one of the barbiturates, about 30 to 45 minutes before being called to the x-ray room. He is placed on the right side on the tilting x-ray table while the table is horizontal. After the back has been cleansed with ether and alcohol two coats of tincture of merthiolate are applied to the skin of the entire lumbar region with the patient under local (1 per cent solution of procaine hydrochloride) anesthesia, a lumbar puncture needle is introduced into the subarachnoid space through the second lumbar interspace, that is the space between the spinous processes of the 2nd and 3rd lumbar vertebrae. When fluid is obtained, a manometer (Ayertype) is connected and routinely the Queckenstedt test is performed. As has been stated, we do not expect to find a "block," for we are purposely puncturing above the site of the suspected lesion. After the pressures have been recorded, 10 to 15 cc. of fluid is collected and placed in a sterile bottle to be sent to the cerebrospinal fluid laboratory for the following tests: Wassermann, globulin, cell count, total protein, and colloidal curve. Then the patient's head is lowered 40 degrees

away from the horizontal by elevating the foot of the tilting x-ray table. All of the fluid in the lumbar portion of the spinal canal is then replaced with air or oxygen. Usually about 40 cc. of fluid in addition to what was collected for a specimen is obtained. We usually inject an additional 10 to 20 cc. of air but this should not be under undue pressure. Approximately 50 to 60 cc. of air is necessary to get a satisfactory filling of the lumbar subarachnoid space."

"While the head is still low and after the lumbar puncture needle has been removed and the puncture wound has been sealed with sterile cotton soaked in collodion, stereoscopic lateral roentgenograms are made. . . . The patient is then returned to his bed and is advised to keep his head low for 24 hours, during which time he receives inhalations of oxygen by mask in order to promote more rapid absorption of the air."

". . . The anesthetic agent most commonly employed is drop ether. The patient is anesthetized by a combination of nitrous oxide and oxygen, and then drop ether is substituted. Some of the surgeons at the clinic prefer to have a McGill intratracheal tube introduced after the patient is asleep and then drop ether is administered over the outer end of the intratracheal tube. If the patient has recovered recently from an infection of the upper part of the respiratory tract or there is any question regarding the advisability of using an inhalation anesthetic agent, such as ether, the operation may be performed while he is under spinal analgesia or under the influence of intravenously administered pentothal sodium. The latter anesthetic agent is particularly useful for persons who are unduly nervous, for those who have severe hypertension, and for those who have asthma or hay fever." 12 references.

A. W. F.

WASSERMAN, L. R., AND STATS, D.: *Clinical Observations on the Effect of 3,3'-Methylenebis (4-Hydroxycoumarin).* Am. J. M. Sc. **206**: 4 (Oct.) 1943.

"During the last few years, the clinical use of anticoagulants has greatly increased due in large part to the preparation of a non-toxic heparin and to the excellent clinical and laboratory studies of intravascular thrombosis and embolism."

"Widespread use of heparin in the therapy of these conditions has been limited by great expense and difficulty of administration of the drug; it must be given intravenously either in a continuous infusion or by injections 3 or 4 times daily.*"

"Investigations with actions of 3,3'-methylenebis (4-hydroxycoumarin) in laboratory animals have shown a prolongation of the clotting time and a reduction in prothrombin activity of the blood. . . . In these studies we have considered a satisfactory response to the dicoumarin to be an increase in the clotting time of the whole blood to between 15 and 20 minutes and a fall in the prothrombin index of the plasma to between 30 per cent and 50 per cent."

$$\text{Prothrombin Index per cent} = \frac{\text{Control plasma time (seconds)} \times 100}{\text{Pathologic plasma time (seconds)}}$$

At the same time there must not be untoward toxic effects, i.e. hemorrhagic manifestations.

". . . In general, the plan of dosage was directly dependent upon the individual responses of the prothrombin index. The drug was given if necessary in daily doses of 200 to 500 mg. The drug was given in some cases when the prothrombin index was as low as 40 per cent. Our most recent

* Since this manuscript was submitted Loewe and Rosenblatt have reported on a satisfactory technique for the use of heparin by the subcutaneous route.