From the age standpoint alone, there is little choice between spinal and inhalation anesthesia for adult patients undergoing an orthopedic operation on the lower extremities. If spinal anesthesia is not practical or desirable and the patient is on his abdomen, an endotracheal type of anesthesia is done. Nitrous oxide with never less than 20 per cent oxygen is used with pentothal. Pentothal sodium is used in inducing ether anesthesia. Barring explosion hazards, there is little to choose between the various agents if oxygen supply to the tissue, airway and replacement therapy are adequate.

For operations involving the administration of intocostrin an endotracheal tube is always used.

In the aged, because of law vital reserves, replacement and oxygen therapy are of the utmost importance.

For amputations in diabetic patients, there is no substitute for refrigeration anesthesia properly given.

Too much stress cannot be placed on supportive therapy before, during, and after surgical intervention.

M. F. P.

FRANKSSON, C., AND GORDH, T.: *Headache after Spinal Anesthesia and a Technique for Lessening its Frequency.* Acta chir. Scandinav. **94**: 443–454 (Sept. 10) 1946.

Headache, which sometimes occurs after operation, is one of the commonest and most important complications of spinal anesthesia. In most studies, the frequency of post-spinal anesthetic headaches is given as 15 to 30 per cent. The headache usually occurs from the first to the fifth day after operation and it is stated to be more common in patients under forty years of age and in women. Two types of headache can be distinguished, a rare type in which the ache is of a splitting character and the other in which a band-like, oppressive ache around the head seems to be aggravated by movement and may be combined with vertigo. In the first type the picture is that of meningism. Meningism may be precipitated by infection, irritation by the anesthetic agent or by the needle. A search for an anesthetic which is less irritant than other agents has thus far been unsuccessful.

In a series of 362 cases of low spinal anesthesia headache occurred in 13 per cent. Etocain solution, 5 per cent, was used. The needles used varied in diameter from 0.7 to 1.0 mm. The main contributing factor was thought to be leakage of cerebrospinal fluid into the epidural space. The dural puncture openings were shown to be open for two weeks or longer in autopsy examinations. Leakage was minimized by using a special, fine needle with introducer (called the Antoni-Sise needle). The diameter of this needle is 0.5 mm. Using this needle and "heavy Decicaine" (pontocain-glucose with specific gravity 1.040) in 100 consecutive cases, no case of headache was reported. No special prophylaxis was used. Some of the patients walked from the operating table and others were out of bed on the day of operation. The technic would be especially useful for minor and simple operations where headache might be relatively of more consequence. 26 references.

F. A. M.

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