



1981
YEAR BOOK OF
ANESTHESIA®

ECKENHOFF / BART
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The YEAR BOOK of **Anesthesia** 1981

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Dedication

[Abstracted from the memorial resolution of the faculty of the University of Wisconsin on the death of Doctor Waters on December 19, 1979.]

DEDICATION TO RALPH MILTON WATERS 1883-1979

Doctor Waters was born in Ohio on October 9, 1883, received his M.D. from Western Reserve University in 1912, interned in Cleveland and began general medical practice in Sioux City, Iowa. His first professional cards noted "Practice limited to Obstetrics and Anesthesia." He soon devoted himself to the administration of anesthetics, although few physicians at that time were interested in anesthesia. In 1924, he moved his practice to Kansas City, establishing an anesthesia clinic where surgeons and dentists could schedule time for their ambulatory surgical patients. During a visit to the Wisconsin General Hospital, Waters met members of the medical school faculty and accepted an invitation to move to Madison as the anesthetist for the new hospital, to share the laboratories of pharmacologists and physiologists who offered an opportunity to answer questions he had encountered in practice. His stated goals were to provide service to patients, to teach the principles of anesthesiology, to help graduate students master the art of effective teaching, and to encourage cooperative investigation. He accomplished these goals, becoming an international leader in the specialty, acknowledged for his teaching, research, and clinical skill.

In the next two decades, Anesthesiology emerged as a specialty. Madison became an international Mecca for visitors, and many of Waters' trainees became leaders in the United States and abroad. An impressive number became

founders of departments in United States and foreign medical schools. Waters' investigations resulted in the clinical use of cyclopropane, the to-and-fro method of carbon dioxide absorption, and the technique of endobronchial intubation. Waters was a stimulating teacher, his students learning promptly and dramatically. He served as a catalyst, urging younger colleagues to seek answers in the laboratory and encouraging interdisciplinary research.

During World War II, a short course was developed for Army officers to meet the increased demand for anesthesiologists. Many of these physicians continued residency training after the war, providing a major impetus for the growing specialty. Waters liked to demonstrate simple methods of pain relief to use in the absence of complicated equipment. He often used large doses of morphine as an anesthetic.

His contributions to anesthesiology are legend. Waters was instrumental in organizing the American Board of Anesthesiology and was its first president. The American Society of Anesthesiologists, in which he also had served as president, awarded him its Distinguished Service Award. He was the fourth recipient of the Hickman Medal for outstanding original work in anesthesia, given by the Society of Anesthetists of Great Britain and Ireland. King Gustav of Sweden recognized Doctor Waters' training of the first four Swedish anesthesiologists by awarding him the Order of Vasa in 1947. The University of Wisconsin granted him an honorary degree in 1951, and Western Reserve University granted him a Doctor of Science Degree in 1957. He resigned at Wisconsin in 1949, becoming Professor Emeritus, and spent his remaining years with his wife in an orange grove in Orlando, Florida. In 1969, Sir Robert MacIntosh, Professor of Anaesthetics at Oxford University, called Ralph Waters "the doyen of anesthesia of the world."

Current Literature Quiz

The questions below are an informal test of your knowledge before and/or after reading the YEAR BOOK. The questions are answered by locating the appropriate article in the text by its reference number, which appears in parentheses after each question. The reference numbers indicate the chapter in which the article appears and its numerical order within the chapter.

1. How effective are surgical gowns in preventing the transmission of microbes? Does the type of fabric used in the gown have any effect? (1-2, 1-3)
2. What is acute tolerance? Does it play any role in anesthetic management? (2-5)
3. Should operations be postponed in patients found to be mildly hypertensive on the night before surgery? What drug therapy might be indicated in these patients? (4-5)
4. Is cimetidine or an antacid more effective in the control of gastric pH in the critically ill patient? (6-7)
5. Is stump pressure in the carotid artery a reliable guide to the need for shunting during carotid endarterectomy? (10-2)
6. What historic or clinical variables are associated with poor operative survival in patients with coronary artery disease who will have coronary bypass procedures? Does coronary bypass surgery provide early and long-term improvement in ventricular performance? (9-2 and 9-4)
7. Is it safe and effective to use sodium nitroprusside and dobutamine simultaneously? (9-17)
8. Is epidural anesthesia indicated in aortofemoral arteriography? For what reasons? (10-6)
9. What effect does saline have on blood clotting? Can this effect influence morbidity during the postoperative period? (13-7)
10. How would you prepare a child with sickle cell disease for anesthesia and operation? (14-7)
11. Is enflurane or halothane a better drug for outpatient dental anesthesia? For what reasons? (17-1)
12. How does rate of injection affect the incidence of hypotension seen after *d*-tubocurarine administration? (7-3)
13. Clinical experience has shown that a mixture of chloropro-

- caine and bupivacaine used for epidural analgesia has a duration characteristic of chlorprocaine alone. What explanation has been postulated for this phenomenon? (2-20)
14. What anesthetic-related complications are seen with greater than expected frequency in patients receiving terbutaline to suppress uterine contractile activity? (15-4)
 15. What fetal or neonatal complications result from the administration of oxygen to the mother?(15-3)
 16. Meperidine can be utilized for pain relief in labor. It can be given intramuscularly according to a dosage schedule or via an intravenous demand device. Contrast the dosages and the neonatal well-being parameters for the two styles of administration. (15-23)
 17. Compare the advantages and disadvantages of epidural and general anesthesia for the preeclamptic patient undergoing cesarean section. (15-12)
 18. In shock, the intracellular sodium level rises significantly and the potassium level falls slightly. What is the probable explanation for these changes? (21-3)
 19. Compare and contrast the effects of steroids and prostaglandins on the cardiovascular system during shock. (21-4)
 20. Is age or smoking history the most reliable indicator in predicting a low PaO_2 postoperatively? (13-5)
 21. Isoproterenol administration is often associated with subendocardial ischemia. Is there a pharmacologic basis for this? (2-36)
 22. What are some of the possible causes of cardiopulmonary insufficiency after blood transfusion other than an increase in blood volume? (12-2)
 23. What influence does a nasogastric tube inserted preoperatively have upon postoperative complications? (4-7)
 24. What is the effect of hypercapnia on the cerebral metabolic rate for oxygen? (3-10)
 25. Are morphine and fentanyl similar in their effect upon the biliary tract? (2-29)
 26. Compare and contrast the effects of butorphanol and nalbuphine with those of morphine. (2-27)
 27. Is halothane capable of blocking the sympathomimetic effects of cocaine? (2-19)
 28. What is the effect of urine pH on plasma fluoride concentrations after enflurane anesthesia? (2-11)
 29. Can naloxone reverse the analgesic effect of nitrous oxide? (2-3)
 30. What is the influence of age on endocrine-metabolic response to surgical procedures? (18-4)

31. Is there any evidence that hyperbaric oxygen may be immunosuppressive? (19-18)
32. When the heart is arrested during cardiac surgical procedures, what are the two most important factors in preserving the integrity of the myocardium? (9-9)
33. Contrast the effectiveness of cimetidine and atropine on gastric secretions and gastric acidity. (6-6)
34. Nitroprusside infusion prolongs the duration of neuromuscular blockade produced by pancuronium. True or false? (2-9)
35. Are all actions of morphine mediated by the same opioid receptors or are specific receptors matched for specific actions? (2-24)
36. Does acetylsalicylic acid also act through the endorphin-enkephalin neurotransmitter mechanism? (2-25)
37. The acute administration of propranolol has no influence on the chemical drive of respiration. True or false? (2-43)
38. What are the constituents of Brompton's mixture? (22-7)
39. Can nitroprusside infusion diminish the incidence of ventricular extrasystoles in some circumstances? (20-13)
40. Enumerate the clinical advantages of the membrane oxygenator as compared to the bubble oxygenator. (9-15)
41. One kPa is equal to how many mm Hg? (9-7)
42. Fetal bradycardia following paracervical block is due primarily to which of the following factors: (a) absorption of the local anesthetic into the fetal bloodstream producing a direct depressant effect on the heart, (b) fetal hypoxia? (16-7)
43. Extradural morphine or meperidine, in low doses, is effective in relieving pain from what origins? In what circumstances is it ineffective? (15-20 and 22-1)
44. Is the intrathecal injection of morphine a good method of providing pain relief for parturients? For what stages of labor? (15-21)
45. After prostatectomy, which drug provided the longest analgesia when injected extradurally—bupivacaine or morphine? (22-2)
46. In the event adrenergic vasopressors are injected inadvertently in the parturient, what measures are available to counteract the uterine artery vasoconstriction that occurs? (15-8)
47. Are there any data from man on the immunosuppressive effect of general anesthesia vs. regional anesthesia? (5-1)
48. Is there any evidence that steroids given to the parturient may reduce the incidence of respiratory distress syndrome in the neonate? (16-5)
49. What are the hazards of administering anesthesia for electroconvulsive therapy to patients with brain tumors? (4-6)

50. What is the significance of the appearance of a sinusoidal fetal heart rate pattern in the unborn infant? (16-2)
51. What is the relationship, if any, between fetal hypoxia and the development of necrotizing enterocolitis in the neonate? (16-8)
52. Chloroprocaine has been implicated in neurologic complications when it has been deposited intrathecally during an attempted epidural injection. What might be the basis for the complication? (15-16 to 15-18)
53. What role does hepatic transformation have in the metabolism and excretion of nondepolarizing muscle relaxants? (7-1)
54. What is the relationship between diet and ventilation? What are the implications of this relationship for patients with chronic pulmonary disease? (19-21)
55. What is the effect of positive end-expiratory pressure therapy on closing capacity? (19-5)
56. What effect does a reduction in functional residual capacity have on arterial oxygenation? (19-9 and 19-10)
57. Are pulmonary capillary wedge pressure measurements reliable in patients on airway pressure therapy? Would routine measurement of transmural pressures be of value in assessing cardiac function in patients on mechanical ventilation? (19-13)
58. Is intermittent positive-pressure breathing preferable to incentive spirometry in the prevention of postoperative pulmonary complications? (13-3)
59. What anesthetic agent's action is affected by probenecid? What are the clinical implications of this drug interaction? (2-44)
60. What is the rationale for increasing the FI_{O_2} of a patient to 1.0 when measuring intrapulmonary shunting? What are the probable pathophysiologic changes that may follow this practice? (19-4)
61. How does nalbuphine differ from other narcotic drugs in its action on the respiratory center? (2-26)
62. What is the role of colloid oncotic pressure in the genesis of pulmonary edema associated with sepsis? Is there a clear indication for colloid infusions in septic patients? (12-4)
63. What are the effects of aspiration of gastric contents with a pH of 5.0 on pulmonary function? (15-10)
64. What are the effects on lung parenchyma of overexpansion of neonatal lungs? (14-4)
65. What are the determinants of tissue oxygenation? How do they correlate with survival in traumatic shock? (21-1)