

Cardiovascular Research Institute, University of California Medical Center, San Francisco, California. Loeschke and associates have described a superficial pH sensitive area in the fourth ventricle which can influence respiration (Loeschke, H. H., and others: *Pflug. Arch.* 266: 569, 1958). In 18 dogs, we performed a suboccipital craniotomy under chloralose anesthesia and perfused the fourth ventricle with a mock spinal fluid of known P_{CO_2} and pH at 38 C. Changing the HCO_3^- in the perfusate from 45 mEq./l. to 15 mEq./l. increased minute ventilation an average of 350 per cent. P_{CO_2} was kept constant in both solutions at 51 mm. Hg and isotonicity was maintained by altering Cl^- . In a number of animals, the perfusion response was diminished or absent after accidental trauma of the obex of the medulla oblongata. There is in this region a superficial glomus-like structure, the area postrema, which has many of the histological characteristics of a chemoreceptor. In 9 out of 12 dogs, where a normal perfusion response had previously been demonstrated, destruction of the area postrema abolished this response. In a series of 8 dogs and 1 cat, the ventilatory response to topical application of nicotine, acetylcholine and norepinephrine at the area postrema was studied. Nicotine produced an inhibition of ventilation in all animals, acetylcholine gave a similar effect in 3 animals and norepinephrine stimulated ventilation in one. Histamine, serotonin, phenylidguanidine and strychnine did not produce any effect. In conclusion, it can be said that there is definite evidence for the existence of a chemoreceptor in the fourth ventricle sensitive to pH of spinal fluid. The function of this receptor is impaired by lesions in the region of the area postrema. The area postrema is a pharmacological trigger zone sensitive to nicotine and probably to acetylcholine. So far topical application of mock spinal fluid with varying pH values to the isolated area postrema has failed to give ventilation responses. Therefore, the pharmacological trigger zone is not necessarily identical with the pH sensitive receptor. [Supported in part by USPHS Graduate Training Grant 2C-63.]

Changes in Central Venous Pressure During Controlled Blood Loss and Transfusion

During Operation. CAPT. THOMAS P. MATHEWS, MC, AND LT. COL. JOHN A. JENICEK, MC., *Anesthesia and Operative Service, Brooke General Hospital, Fort Sam Houston, Texas.* This study of central venous pressure change was carried out on two groups of patients. The first group of 10 patients was subjected to a controlled phlebotomy of 500 cc. of whole blood and then retransfused with 500 cc. of blood and preservative solution after a ten minute wait. The second or control group had no phlebotomy and were subjected to 100 cc. or less of surgical blood loss. The patients were all males, Class I surgical and anesthetic risks, ages 18 to 48 years, and all were subjected to inguinal herniorrhaphy under nitrous oxide oxygen ether anesthesia. Results of this limited number of cases indicated that venipuncture of the median basilic vein with subsequent passage of a plastic catheter into the superior vena cava, just proximal to the right atrium is safe, and even under local anesthesia subjects the patients to only mild discomfort. Post-catheterization morbidity did not occur in any of the patients. Venous pressure fell during phlebotomy, leveled off during a "rest period" and rose during the retransfusion. Results indicated that this is not a reliable parameter for the purpose of measuring the fluid loss or the amount of blood transfusion given because it is affected by such factors as anesthetic agent, anesthetic technique, depth of anesthesia, positive pressure breathing (assisted or controlled), airway management and the unpredictable occurrence of airway obstruction, coughing, straining or wheezing. However, when the anesthesiologist controls those factors named, the venous pressure may be used as a fairly sensitive indicator of parenteral fluid loss and may be also used to indicate when to terminate fluid, especially blood, replacement. In the control series of patients, a rise of venous pressure occurred with induction, it remained at an elevated "plateau" during anesthesia, and then fell toward normal levels at the end of anesthesia. This phenomenon has not been studied to provide a satisfactory explanation at this time.

Respiratory, Circulatory and Hepatic Effects of Methoxyflurane in Dogs. WILLIAM

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