

itis, involving also some of the external muscle fibers, and showing some fibroblastic proliferation.

Simultaneous electrocardiographic studies confirmed the presence of ventricular fibrillation as noted above. Successive changes in the R T interval and the T-waves usually associated with coronary occlusion were noted in the longer experiments. In 2 dogs simple opening of the pericardium produced changes in the T-waves similar to those described as due to coronary occlusion. No uniform electrocardiographic changes were noted in animals surviving less than 10 hours.

## 6965

**Absorption Properties of the Intima of the Carotid Artery.\***

ELIZABETH M. RAMSEY AND LOUIS K. ALPERT.

(Introduced by Raymond Hussey.)

*From the Department of Pathology, Yale University School of Medicine.*

In the course of a series of studies on the structure and function of vessel walls it was determined to investigate the absorption properties of the intima by injecting a diffusible substance into the lumen of a closed vessel. Dogs were used as experimental animals and the common carotid artery was the vessel chosen. For the diffusible substance phenolsulphonphthalein was selected because it has no effect upon tissues and, if absorbed, can be readily detected in the urine in small amounts. The carotid sheath was exposed and the artery doubly ligated without opening the sheath. The ligatures were placed as far apart as possible to allow a maximum of absorption surface, but great care was exercised that no branches should be included in the stretch between the ligatures. The dye was injected through a cannula at a constant pressure equivalent to the carotid pressure (determined for each animal on the contralateral vessel). At the termination of the experiment the phenolsulphonphthalein was evacuated and 1% trypan blue was run through the same system at the same pressure to exclude the possibility of leakage in the system. In a series of 7 animals the dye appeared in the urine in all instances. The appearance time varied between 48 and 141 minutes, whereas the appearance time was 4 to 8 minutes in several

---

\*This investigation is supported by funds from the Josiah Macy, Jr., Foundation.

control dogs to whom 1 cc. of the dye was administered by the usual intravenous route. No obvious explanation of the delay in excretion was apparent, but, as might be expected, analysis of the data shows that the amount of dye absorbed is a function of the length of vessel included between the ligatures.

6966

**Response of Tissue of the Intima to Injurious Agents.\***

ELIZABETH M. RAMSEY AND LOUIS K. ALPERT.

(Introduced by Raymond Hussey.)

*From the Department of Pathology, Yale University School of Medicine.*

A series of experiments was designed to investigate the nature of the reaction exhibited by the intima when brought in contact with an injurious agent. Eleven arteries in 8 dogs were subjected to the experiment. The common carotid artery was isolated and doubly ligated according to the procedure previously outlined.<sup>1</sup> Various strengths of turpentine, ranging from 15% in mineral oil to the crude substance, and 30% to 75% croton oil in mineral oil were injected into the lumen of the vessel by syringe or through a cannula. The injurious agent was allowed to remain in contact with the intima for periods varying from 2 minutes to 48 hours and then the portion of the artery between the ligatures was removed for microscopic examination. As controls, to determine how much reaction was caused by the operative procedure alone, histological preparations were made of the arteries which were used in the phenolsulphonphthalein experiments.<sup>1</sup> In these the endothelium was uniformly intact and well stained. The muscular, elastic and fibrous tissue elements of the media showed no changes. There was no necrosis or hemorrhage in any of the coats and no exudate at any point in the vessel wall proper. Surrounding some of the vessels lying in the connective tissue outside the adventitia were small collections of polymorphonuclear leucocytes, but in no instance were these seen infiltrating the adjacent tissue. Microscopic examination of the

---

\*This investigation is supported by funds from the Josiah Macy, Jr., Foundation.

<sup>1</sup> Ramsey, E. M., and Alpert, L. K., *PROC. SOC. EXP. BIOL. AND MED.*, 1933, **30**, 1432.