Summary. The average alkalinity of the duodenal secretions was found to be approximately .04 normal and the chloride concentration 307 mg. per 100 cc. These values obtained on secretions from the intact duodenum are in excellent agreement with values previously reported on secretion obtained from isolated duodenal pouches.

7396 P

Methylene Blue as an Agent for Reducing Red Blood Cell Count.

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Over a period of a week or 10 days following intravenous injection of methylene blue into dogs poisoned with cyanide there occurs a decrease in the oxygen capacity of the blood and a corresponding decrease in red blood cell count. The same effect is observed when the dye alone is given. Results of a typical experiment are reported in this preliminary note.

Table I shows the changes in red blood cell count, oxyhemoglobin (by O_2 capacity method), and reticulocytes in a 17 kilogram dog

Date	Time A.M.		Oxyhemoglobin mMols. per liter	n R. B.C. in millions	Reticulocytes %	
3-6-34	11:30	Blood No. 1	9.18			
	11:31	$\begin{cases} 26 \text{ cc. } 1\% \\ \text{methylene} \\ \text{blue injected} \end{cases}$	}			
	P.M.	C U	5			
	3:20	Blood No. 2	(Methyler not d	ne blue and r	nethemoglobin stroscopically)	
	3:25	$\begin{cases} 23 \text{ cc. } 1\% \\ \text{methylene} \\ \text{blue injected} \end{cases}$	}	oreginal pro-	, , , , , , , , , , , , , , , , , , ,	
3-10-34		Blood No. 3	J 3.76			
3-12-34		,, ,, ₄	2 23	1 56	14	
3-13-34		<i>יי</i> יי א	2 18	1.81	2.1.1	
3-14-34		,, ,, ₆		1.62	7.4	
3-15-34		»» » 7 *	(White ce	(White cell count only)		
3-16-34		<i>,, ,,</i> ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,	3.26	2.67	4.6	
3-19-34		,, ,, <u>,</u>	4.63	3.36	5.2	
3 - 21 - 34		"""10		3.07	3.4	
3-27-34		"""11		3.82	2.0	
3-29-34		""12†	6.60	4.23	2.0	

TABLE I.

* Whites, 10,200. † Whites, 13,600.

following intravenous injection of 30 mg. of methylene blue per kilo body weight.

Each of 5 dogs which received methylene blue (in quantities ranging from 15 to 40 mg. per kilo body weight) developed an anemia the severity of which was greatest with the larger doses. In 2 experiments, otherwise less complete than that reported, the oxyhemoglobin (O_2 capacity) of the blood was determined on the first and second days following methylene blue injection and was found to be only slightly below the preinjection level, although several days later it had fallen to severely anemic levels. This fact and the absence of hemoglobinuria and hematinuria during the entire period following dye injection indicate that there is no immediate massive destruction of cells in the circulation.

Experiments designed to relate quantitatively dosage to response and to determine the mechanism of the methylene blue action are in progress. We also have in mind the possibility that methylene blue may find practical application in the treatment of polycythemia vera.

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Conduction of Cortical Impulses to the Autonomic System.

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Clinical as well as experimental observations show that the cortical centers of vegetative organs are, in many instances, in close topical relation to those of adjacent skeletal muscles. The descending cortico-fugal tracts to the peripheral part of the autonomic system are topographically related to the pyramidal tract. They also lose their excitability after destruction of the motor cortex and frontal lobe, within the same time as do the corticofugal somatic fibers. (Spiegel,¹ Friedberg.²) It seemed, therefore, of interest to ascertain whether the pyramidal tracts by themselves can conduct corticofugal impulses to the autonomic system. The experiments were performed on 30 cats. In a first series, the "extrapyramidal" fibers that arise from the hypothalamus were severed by deep incision into

¹ Spiegel, E. A., Zentren. des autonomen Nervensystems. Berlin, Springer, 1928. Bull. Johns Hopkins Hosp., 1932, 50, 237.

² Friedberg, Ch., Z. ges. Neurol., 1931, 50, 134.