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## Carbohydrate utilization during amytal anesthesia.

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Page<sup>1</sup> has shown that anesthesia produced by amytal is not associated with the hyperglycemic changes which usually accompany anesthesia. Numerous investigators have employed this anesthetic in experiments involving various phases of carbohydrate metabolism.

A comparison has been made of the response to intravenous glucose administration in six dogs with and without amytal anesthesia. The authors<sup>2</sup> have previously observed a marked constancy in the response of any one animal to repeated glucose injections. The amytal was administered in doses of 60 mg. per kilo body weight intraperitoneally or 100 to 110 mg. per kilo body weight subcutaneously. The depth of the narcosis during the course of the experiment varied in different animals from light to deep surgical anesthesia. The method employed for studying the response was the same as previously described.<sup>2</sup> A thirty per cent solution of glucose was injected intravenously by means of a Woodyatt pump at a rate of 4 grams per kilo body weight per hour for several hours. Observations of blood and urine sugar, urine volume, hemoglobin percentage, CO<sub>2</sub> content and pH of plasma, respiratory quotient and heat production (indirect calorimetry) were made on numerous occasions before, during and following the injection.

Each animal showed greater hyperglycemia, a marked increase of glycosuria and slightly greater fall of pH than was observed in control experiments on the same animal. Respiratory data vary but little from the controls. The average percentage of injected glucose excreted in the urine during and following the injection was 32.7 per cent in the animals with amytal and 18.6 per cent in the same animals without anesthesia.

<sup>1</sup> Page, I. H., *J. Lab. and Clin. Med.*, 1923, ix, 194.

<sup>2</sup> Boyd, J. D., Hines, H. M., and Leese, C. E., *Am. J. Physiol.*, 1925, lxxiv, 656.

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Average Blood Sugar Values for the 6 Animals.

	Without Amytal.	With Amytal.
Before injection .....	.099	.098
15 min. after injection began.....	.322	.400
1 hr. after injection began.....	.351	.468
2 hrs. after injection began.....	.353	.455
4 hrs. after injection began.....	.430	.453
30 min. after injection ended.....	.108	.155

Average Blood Plasma pH and CO<sub>2</sub> Content.

	Without Amytal.	With Amytal.
CO <sub>2</sub> before injection .....	49.0	50.6
CO <sub>2</sub> end of injection .....	40.0	38.6
pH before injection .....	7.357	7.365
pH end of injection .....	7.317	7.265

These results would indicate that certain phases of carbohydrate metabolism are disturbed in amytal anesthesia and that data obtained with its use should be interpreted accordingly.