

THE EFFECT OF ACUTE STAPHYLOCOCCAL ALPHA-TOXIN
PANCREATITIS ON THE GLUCOSE TOLERANCE)
OF DOGS

by

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INTRODUCTION

Pancreatitis and diabetes mellitus commonly occur as two separate disease entities in dogs. However, pancreatitis is the main predisposing cause of diabetes mellitus. Diabetes may develop during the first episode of pancreatitis, or it may occur weeks or months after a recurrent episode. Pancreatitis damages both acinar and endocrine pancreatic tissue. It has been suggested that glucose tolerance is impaired during pancreatitis. Little work has been done in dogs concerning glucose tolerance during pancreatitis. Greve and Anderson (58) studied experimental pancreatitis with diabetes mellitus in dogs. Using the high-dose intravenous glucose tolerance test (H-IVGTT), they found that the glucose tolerance was markedly decreased after the induction of pancreatitis in dogs that were predisposed to diabetes by pre-treatment with diabetogenic hormones. The main objective of this study is to determine whether experimental acute pancreatitis reduces the glucose tolerance of dogs that are not pretreated before the induction of pancreatitis.

A practicing veterinarian is usually limited in the amount of time he can spend with an individual patient. For this reason, he might be reluctant to use the H-IVGTT to assess an animal's glucose tolerance. The standard H-IVGTT requires that six timed blood samples be drawn during an hour. If a practitioner were to perform this test, he would have little time for other activities between venipunctures. Therefore, it would be an advantage to the practitioner to decrease the time required to administer the test by decreasing the required number of venipunctures. That is the second objective of this study; i.e., to determine if a k-value calculated using fewer blood samples can closely approximate the k-value calculated using the standard number of samples.

REVIEW OF LITERATURE

Acute Pancreatitis In The Dog

Pritchett (1940) (1) described the clinical signs of acute pancreatitis in a 12-year-old male Fox Terrier. The dog was presented following the sudden onset of vomiting. It had clinical signs of thirst, dehydration, tachycardia, hyperemic oral mucous membranes, abdominal pain, a rigid abdomen with abdominal fluid, tenesmus, and a rectal temperature of 105° F. While the animal was under anesthesia, a disc-shaped mass was palpated in the extreme anterior portion of the abdomen just posterior to the xiphoid cartilage. An abdominal neoplasm was considered because the dog had a history of tumors; therefore, euthanasia was performed. On post-mortem examination, there was a large amount of blood-stained fluid in the abdomen and necrosis throughout the abdominal fat. The mass was an enlarged, firm, red and gray pancreas. The pancreas impinged on the duodenum causing duodenal stenosis. The histopathological diagnosis was acute hemorrhagic pancreatitis. Pritchett assumed that obstruction of the pancreatic duct due to an inflammatory process was the primary etiology of the pancreatitis.

Coffin and Thordal-Christensen (1953) (2) discussed the diagnosis, treatment, and the clinical signs of acute necrotic pancreatitis. Clinical signs consisted of sudden onset of abdominal pain and vomiting, bloody diarrhea, unwillingness to move, assuming a prayer position, increased heart rate, dehydration, and shallow respirations. A moderate leukocytosis might also be present. The authors attributed the necrotic changes in the pancreas to autodigestion by pancreatic enzymes.

Singleton and Rhodes (1957) (3) presented a case report of acute