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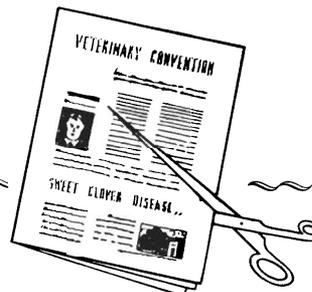
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ABSTRACTS



THE USE OF CORTISONE IN THE TREATMENT OF KETOSIS IN DAIRY COWS. Intramuscular injections of cortisone acetate were employed successfully in the therapy of thirteen clear-cut cases of ketosis in postpartum, high producing dairy cows. Each of the animals presented the usual symptoms of anorexia, loss of body weight, dehydration, ketonuria, decline of milk secretion, relatively dry and scanty feces, lethargy or in some cases varied forms of paresis.

Excellent recoveries, without relapses were obtained in six of these following a single dose of 500 mg. of cortisone. Two others were given a second dose of 250 mg.; however it is doubtful that these were necessary. On the other hand two cows required a second dose of 500 mg. for complete recovery. The three remaining cases were more refractory to cortisone treatment, presumably because of clinical complications.

Ketosis is a metabolic disorder and not a disease entity. It may be precipitated by any one or more of a series of non-specific causes, circumstances or stresses. In high producing dairy cows the primary cause is lactation. Any one or more of a number of secondary predisposing factors may become the "trigger factor" for its initiation. Metabolically, ketosis is characterized by an imbalance between the nutritive intake and the nutritive requirements of the animal; the immediate ketogenic conditions, however, are low liver glycogen and hypoglycemia.

The primary anti-ketogenic factors are

high liver glycogen and blood glucose levels. If maintained within normal limits, ketosis of clinical magnitude will not occur.

[Dye, J. A.; Roberts, S. J.; Blampied, N.; Fincher, M. G. The Use of cortisone in the treatment of ketosis in dairy cows. *The Cornell Veterinarian*, 43:128-159. (January) 1953.]

COAGULATION MECHANISM AND HEMOSTASIS.

For blood to clot, thrombin is necessary; for hemostasis to be effective, the production of a relatively large amount of thrombin is required; and for the formation of this clotting agent at least five recognized primary substances are needed. They are: a platelet factor, thromboplastinogen, labile factor, calcium and prothrombin. These five factors co-exist in the blood but do not interact because thromboplastinogen is in an unreactive state. It will not even react with a potent extract of platelets. Only after it has been acted upon by thrombin, does it react with the platelet factor to form thromboplastin.

It is to be noted that thrombin not only converts fibrinogen to fibrin but participates in a chain reaction in which it activates thromboplastinogen. If it were not for some mechanism to remove thrombin promptly, the clotting mechanism would, when once set into action, continue until all the blood of the body would be clotted. The agent responsible for removing thrombin, and therefore for controlling the clotting reaction, is fibrin which, because of its reticulated structure

in the clot, offers an enormous surface and therefore acts with facility. It is to be emphasized that it is not the capacity of fibrin to remove thrombin, but its ability to inactivate small quantities expeditiously that makes fibrin the preeminent, if not perhaps the only normal physiologic inhibitor in the clotting mechanism.

It is becoming increasingly evident that the initial clot alone, even when formed within the normal period of time, is not sufficient for effective hemostasis. As a matter of fact, only a minute amount of thrombin is required to clot blood. The physiologically effective clot must be more than a static mechanical plug; it must function as a reaction medium in which a slow but continuous evolution of thrombin occurs and a diffuseable vasoconstrictor principle is elaborated from disintegrating platelets. If any one of the primary five clotting factors is lacking, hemostasis becomes defective because the small quantity of thrombin formed is promptly removed by adsorption to fibrin and the clot becomes static and physiologically inert.

[Quick, A. J., M.D. Coagulation mechanism. *The American Journal of Medicine*, 61:137-152. (March) 1953.]

SPORADIC BOVINE ENCEPHALOMYELITIS. Sporadic bovine encephalomyelitis is a specific and definitive disease syndrome of cattle. Calves less than a year of age are more susceptible to severe attacks than are yearling or adult cattle. The disease appears to be more common in the midwestern states than elsewhere, but this apparent difference may be the result of less accurate reporting in regions where cases may be occurring in sporadic fashion in small herds.

The evidence recorded here indicates that the disease is enzootic over a wide area. Epizootics occur in herds containing large numbers of calves, and not infrequently outbreaks follow recruitment of susceptible calves into established herds. Under these conditions the velocity of infection is apt to be swift and the duration of herd illnesses to span a period of about four weeks.

Clinical and pathological observations indicate that the infectious agent primarily attacks mesenchymal tissues, among which the vascular tree and serous membranes bear the brunt of the attack. Encephalomyelitis is not primary, but arises as an incident in a widespread invasion of mesenchymal tissue by that virus.

Minute elementary bodies may be found in tissues and exudates obtained from the carcasses of cattle dying of the disease. Tissues and exudates obtained from infected cattle produce experimental infection in guinea pigs and in embryonated eggs. In the peritoneal exudate of guinea pigs, and in the yolk sac of embryonated eggs, there appear elementary bodies similar in morphology to members of the psittacosis-lymphogranuloma venereum group of viruses.

[Menges, R. W., D.V.M.; Harshfield, G. S., D.V.M.; Wenner, H. A., D.V.M. Sporadic bovine encephalomyelitis. *The American Journal of Hygiene*, 57: 1-24. (January) 1953.]

TOLUENE AGAINST ASCARIDS AND BOTS IN HOSES. Carbon disulfide, commonly employed for the removal of certain equine parasites, frequently causes gastritis with sloughing of the mucosa and must be given cautiously, especially to foals. This and other considerations have long evidenced the need for a safer treatment.

Experimental evidence, together with information available from other sources, suggests that toluene may be a safe and effective treatment for removal of ascarids and possibly also of bots from horses. A dosage of 10 cc. per hundred-weight may be adequate for the removal of ascarids when the chemical is administered after an appropriate fasting period; and 20 cc. per hundred-weight has been shown to be effective in animals on full feed. Although the disadvantage of the preparatory fasting is recognized, it may be considered less objectionable than the twofold increase in dosage. In this connection, the digestive disturbances noted in young animals fasted prior to treatment with carbon disulfide may be ascribable largely to the irritant action of the drug rather than to the interruption

of feeding. Of particular interest in this regard is the notation by Graham and Alford that there was severe sloughing of the lining of the stomach when carbon disulfide was used against bots, whereas the stomachs of horses treated with toluene appeared more nearly normal. The chemical has not been uniformly effective against bots, but results obtained in limited trials appear promising.

Toluene removed all of the ascarids and 52 percent of 226 bots from five horses when administered in dosages of 10 to 20 cc. per hundred-weight. These and other available data indicate that toluene warrants further investigation as an equine parasiticide, especially in ascariasis.

[Sinclair, L. R., D.V.M.; Enzie, F. D., D.V.M. Toluene against ascarids and bots in horses. *American Journal Veterinary Research*, 14:49-50. (January) 1953.]

TERRAMYCIN AND AUREOMYCIN: EFFECT ON COAGULATION. Experiments to determine the effects of the intravenous injection of 100 mg. of aureomycin on clotting time were conducted on eight rabbits; similar experiments were conducted with terramycin given in the same dosage. Bleeding and clotting times were also done on 30 patients on terramycin therapy and prothrombin times on 16 patients. Although there was some individual variations in the clotting times in the rabbits and in the bleeding, clotting, and prothrombin times in the patients, there were no significant changes in any of the tests. In the treatment of several hundred patients with both aureomycin and terramycin, no increased frequency of embolism has been noticed. It is concluded that neither drug in the recommended dosages produces any significant alteration in the blood coagulation mechanism, and neither drug should be withheld from any patient because of the fear of producing an intravascular clot.

[Parker, J. W.; Wright, L. T. Terramycin and aureomycin: effect on coagulation. *The Journal of Pharmacy and Pharmacology*, 5:203-4. (March) 1953.]

ANTIBIOTIC RESISTANCE OF PATHOGENIC STAPHYLOCOCCI. Five-hundred strains of hemolytic, coagulase positive *Staphylococcus aureus* isolated from clinical material at the Boston City Hospital were tested for sensitivity to nine antibiotics. From the results of these tests an antibiotic spectrum was constructed which indicates the relative susceptibility of these strains to each of the antibiotics and also permits direct comparisons of the relative activity of the different antibiotics against all strains.

The most striking findings were the marked increases in the incidence of penicillin-resistant strains and the significant increase over previous findings in the proportion of strains resistant to aureomycin and terramycin, particularly the latter. About three-fourths were resistant to penicillin, one-fourth were resistant to aureomycin and one-third were resistant to terramycin.

There was no close correlation between the source of the strain and their antibiotic resistance; the fecal strains, however, had a higher proportion resistant to penicillin, aureomycin and terramycin than did strains isolated from any other source.

Strains that were resistant to aureomycin and terramycin were all resistant to penicillin; the reverse, however, was not true.

[Finland, Maxwell, M.D.; Haight, Thomas H., M.D. Antibiotic resistance of pathogenic staphylococci. *Archives of Internal Medicine*, 91:143-158. (February) 1953.]

THE RELATION OF LIMITED WATER CONSUMPTION TO THE DEVELOPMENT OF URINARY CALCULI IN STEERS. One of the factors which has been suggested as possibly involved in the development of urinary calculi in weaner steer calves is a limited consumption of water. Clinical cases of urolithiasis frequently occur under severe winter conditions when calves do not obtain their normal supply of water because of freezing of the water supply, or because they refuse to drink

enough of the water near the freezing temperature. At this laboratory, observations over a period of several years indicate that urolithiasis occurs where calves have an abundant supply of water. An experiment was set up to obtain information as to the effect on the urinary system of wintering steer calves on the minimum water intake compatible with maintaining life.

Twelve steer calves, about 6 to 7 months old at the beginning of the experiment, were held for nearly three months on a very limited water intake and fed grass hay. The volume of urine excreted was markedly decreased, the specific gravity was correspondingly increased, and the pH was slightly increased. There was no evidence of any interference with the passage of urine through the urethra and no evidence that minimal water consumption may be an important factor in the occurrence of urolithiasis in weaner calves.

It was found that the minimal daily water intake to prevent rapid loss of weight and severe constipation was six quarts per head per day for steer calves

on grass hay weighing 438 pounds at the beginning of the experiment.

[Swingle, K. F., Ph.D.; Marsh, H. D.V.M.: The relation of limited water consumption to the development of urinary calculi in steers. American Journal of Veterinary Research, 14:16-18. (January) 1953.]

More than 100 infectious and parasitic diseases may be communicated to man from animals. About 20 are considered important public health problems. Heading the list is Brucellosis. Others are: rabies, swine erysipelas, anthrax, hookworm, ring worm, trichinosis, Newcastle disease, tularemia, tuberculosis, leptospirosis and psittacosis.

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