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ABSTRACTS



CONTRIBUTIONS OF VETERINARIANS TO PUBLIC HEALTH. Veterinarians are guardians of health—the health of the food producing animals of our country; furthermore, they must aid in the production of high quality animal foods which will maintain the health of our people; moreover, the prevention of animal diseases transmissible to man is a definite professional responsibility.

With the medical personnel of each community reduced by the needs of the armed services, it is essential that every veterinarian help in the protection of the health of his community.

As an aid in the production of high quality animal foods, the veterinarian must indicate to his clients the better methods of producing and handling milk and cream in order to prevent contamination with its subsequent souring and its hazard to human health. Fundamentally pure safe milk and cream can reach the consumer only when healthy cows are milked in clean barns, milk pails and all processing equipment are clean and sterile, and the milk and cream are kept cold. Bovine mastitis must be curtailed in order to increase milk production and to improve the quality of that which is produced. As an added safeguard all dairy products should be pasteurized.

The higher price of meat will increase the volume of locally slaughtered animals, both on the farm and for distribution to urban populations. The veterinarian can be of aid in maintaining the safety of this food by serving as an advisor regarding

meat hygiene and in many cases actually inspecting the meat offered for sale. In this way he can augment the important work of the meat inspection service of the U. S. Bureau of Animal Industry.

Some animal diseases are transmissible to man. Diligence must prevail in the eradication of tuberculosis and brucellosis from cattle herds. An outbreak of rabies in any community must receive the immediate attention of the veterinarian, and he must do everything in his power to control the disease, thereby eliminating the hazard to human life. Inasmuch as the virus of equine encephalomyelitis has been shown to produce encephalitis or "sleeping sickness" in man, it is essential that the horse population of each community be immunized so that this animal cannot serve as a reservoir of the infection offering a possibility for transmission to man. The salvage of the carcasses of animals which have died of anthrax, either for the hide or the fat, must be done by those agencies which are equipped to do this type of work. The veterinarian can inform the farmer of the danger involved in handling an animal suspected of having this disease. The organism causing swine erysipelas is able to cause a painful skin infection, called erysipeloid, in the human being. Animals with this disease must be handled with caution in order to prevent infection.

The veterinarian can be of service to his community by giving professional advice concerning water supplies, the reduction of fly nuisances, and in many other

problems relative to environmental hygiene.

(Merchant, I. A., 1943, Abstract of paper presented to Iowa Veterinary Medical Meeting, Des Moines, Ia., Jan. 26-28.)

TREATMENT OF INFECTIOUS ENTERITIS IN SWINE. It has been shown that sulfaguanidine is very valuable as a therapeutic agent in the treatment of the infectious enteric complex in swine. This complex is commonly referred to by such terms as infectious enteritis and necrotic enteritis.

Sulfaguanidine is administered in the morning and evening as a suspension in a small amount of mash at the rate of 0.75 to 1.5 Gm. per 10 lb. of body weight per day. Those animals not partaking of the treated mash received the drug by capsule per orum until they would consume sufficient food to permit the administration of the drug in a portion of the food. To obtain a high level of the drug in the feces, particularly in acute cases, the first dose given was doubled.

The physical condition of the animals showed improvement by the third to fifth day, and the character of feces returned to normal by the fourth to sixth day. The drug was administered for a period of six to eight days, this included a few days after the fecal stools had returned to normal consistency.

An animal recovering from infectious enteritis as a result of sulfaguanidine therapy should not be considered as having significant immunity or resistance to reinfection. This treatment should be supplemented with sanitary measures to prevent reinfection.

A few animals treated with sulfaguanidine have shown remissions. It is not known whether these remissions are due to reinfection or failure of the drug to completely eliminate the causative organisms of the original disease.

(Kernkamp, H. C. H., and Roepke, M. H. 1943. Sulfaguanidine in treatment of infectious enteritis in swine. Amer. Jour. of Vet. Res. 4(10):3-13.)

SULFANILAMIDE TREATMENT OF MASTITIS. Sulfanilamide when mixed with the proper vehicle, light liquid petrolatum, has been found very valuable in the treatment of mastitis when the preparation is injected by the intramammary method. It is prepared by mixing 900cc. of light, liquid petrolatum with 453.6 Gm. of sulfanilamide in a mechanical mixer until a uniform suspension is produced. This mixed preparation is then passed through a homogenizer, the resulting product containing approximately 38 percent homogenized sulfanilamide.

In streptococcic mastitis the dosage recommended for an average size udder is 40cc. of the homogenized product given daily for four days. If the infection persists the treatment is repeated and the daily dose is increased to 80cc. Lactating and non-lactating animals are treated alike. In staphylococcic mastitis the dose recommended is 80cc. with the product given daily for four days and the dosage is repeated if the infection persists.

Homogenized sulfanilamide is well tolerated and readily absorbed by the mammary gland. It may be used in subclinical, acute and chronic forms of mastitis. There is no decrease in milk production during or after treatment.

One hundred and three cows were treated for streptococcic mastitis by intramammary injections of this homogenized product. One hundred of these were infected with *Streptococcus agalactiae* and three were infected with *Streptococcus uberis*. Bacteriological examinations indicated cures were effected in 92 cows (89.3 percent) and partial to no improvement in 11 cows (10.7 percent). Of a total of 265 quarters, 251 (94.7 percent) were cured and 14 (5.3 percent) were not cured.

Sulfathiazole in liquid petrolatum was employed in several cases of acute and chronic staphylococcic mastitis. This drug was capable of destroying the infection in the udder, but there was a formation of plugs which temporarily occluded the teat duct.

(Kakavas, J. C., Palmer, C. C., Hay, J. R., and Biddle, E. S. 1942. Homogenized sulfanilamide-in-oil intramammary injections

in bovine mastitis. *Amer. Jour. of Vet. Res.* 3(8)274-284.)

BLOOD SUBSTITUTES IN TREATING HEMORRHAGE. The purpose of these experiments was to secure quantitative evidence concerning the efficacy of various blood substitutes in a hemorrhage which would be fatal if untreated.

Fifty healthy dogs were used in each series of experiments. Using local procaine anesthesia, the dogs were bled from the carotid artery for a period of from 3 to 20 minutes. In the treatment series, the agent used to replace blood volume lost was administered in a quantity equal to the blood loss within a period of 5 minutes. Bleeding was continued until the onset of acute "air hunger" had occurred or until respiration ceased. The extent of hemorrhage in all experiments varied from 40 to 83 percent of total blood volume.

Dogs in a control series were subjected to hemorrhage varying from 45 to 70 percent of their total blood volume without replacement of loss with a blood substitute; mortality in this group was 84 percent.

In the normal saline series, the blood loss was replaced with an equal volume of normal saline. Mortality in this group was reduced to 58 percent as compared with 84 percent in the control group.

Using an equal volume of pooled dog serum to replace the blood loss, the mortality was reduced to 26 percent or one-third that of the control group. Serum, because it doesn't diffuse from the blood vessels as rapidly as normal saline, is more effective in maintaining blood volume.

All the gelatins studied, with the exception of two, caused marked pseudoagglutination of erythrocytes. A special gelatin solution that caused the least pseudoagglutination *in vitro* reduced the mortality in the gelatin series to 40 percent. The objection to a gelatin solution is that it gels unless held at body temperature.

When citrated plasma (.25 percent concentration of sodium citrate) or citrated

blood was used, the amount of citrate that had to be given in replacing the blood volume lost proved to be toxic. In the citrated plasma series the mortality was 70 percent while in the citrated autotransfusion series the mortality was 50 percent. In severe hemorrhage a total dose of 1.5 grams of sodium citrate per 10 lbs. of body weight may prove lethal.

Heparinized plasma, containing a concentration of 20 milligrams per liter of blood, reduced the mortality from 84 to 6 percent. This proves that plasma is an adequate replacement fluid in the case of extensive hemorrhage; the immediate return of erythrocytes is unnecessary for survival.

Three acacia solutions from different manufacturers and one pectin preparation were tested. Mortality in the pectin series was 100 percent; death resulted from respiratory depression. Mortalities in the three acacia series varied from 71 to 83 percent; death resulted from ventricular fibrillation.

(Ivy, A. C., Greengard, H., Stein, D. F. Jr., Grodins, F. S., and Dutton, D. F. 1943. *The effect of various blood substitutes in resuscitation after an otherwise fatal hemorrhage. Surgery, Gynecology, and Obstetrics.* 76(1):85-90.)

BREEDING RESISTANCE TO AVIAN LYMPHOMATOSIS. Neoplasms of different kinds, mainly lymphomatosis, cause almost half of the prevailing high mortality in poultry flocks. Over a six year period, three different strains of White Leghorns have been bred, two of which are comparatively resistant to neoplasms, the other highly susceptible. Egg production, body size, and egg size were also improved during the experiment, but resistance to neoplasms was the major consideration. More than 95 percent of the birds succumbing to neoplasms had lymphomatosis or some other form of the "avian-leukosis complex."

In 1941-42 these three strains were tested against samples from four different flocks of White Leghorns, none of which

had been selected for resistance to neoplasms, though all had been improved with respect to egg production. The samples were introduced as day old chicks and thereafter were mixed at random with the chicks of the resistant and susceptible strains. The measure of susceptibility was the proportion in each line dying of neoplasms up to 500 days of age.

In all four of the stocks introduced for the test, the incidence was higher than in the two resistant strains. In comparison with the susceptible strain, two of those introduced had fewer losses from neoplasms, but two had slightly more. Egg production in the two resistant strains was higher than in any of the four introduced stocks, and the production index, or number of eggs laid per pullet housed, was much higher in the strains bred for resistance than in the others. These results show the possibility of reducing the currently disastrous losses from this disease by breeding resistant strains.

(Kaufman, B.P. 1943. Abstracts of papers presented at the 1942 meeting of the Genetics Society of America, New York City Dec. 29-31. *Genetics*. 28(1):77).

CONTROL OF COCCIDIOSIS IN POULTRY. Despite the fact that the life cycles of various species of *Eimeria* infecting fowls have been worked out and described in detail, we have failed to make use of our knowledge as is shown in the heavy annual losses caused by avian coccidiosis. Losses from this disease could be reduced to a minimum if the prophylactic measures now known were undertaken at the onset. A summarized review of the diagnostic features might prove helpful.

The coccidia which cause serious trouble in domestic fowls belong to the genus *Eimeria*.

E. teriella infection, caecal coccidiosis, affects principally chicks from 3 weeks to 10 weeks of age and is indicated by the passage of blood, giving the droppings a dark red or chocolate color. In acute cases, purplish-red dilated caecal pouches filled with blood are observed.

E. recatrix infection, upper and middle intestinal coccidiosis, generally affects chicks from 10 weeks of age to maturity, although it may occasionally be observed in younger chicks. It is indicated when sudden deaths occur overnight in a presumably healthy flock without premonitory symptoms of illness. Blood is not passed in the droppings. The head appendages may be cyanosed followed by blanching of the tissues because of extensive hemorrhage into the small intestine.

E. acervulina, upper intestinal form of coccidiosis, is usually chronic in nature. In extensive infections the entire mucous surface appears grayish, mottled and somewhat thickened. The parasites develop superficially and appear on the surface of the intestinal mucosa as whitish or grayish-white elongated transverse masses. No blood is passed in the droppings.

Investigations have shown that the sporulation time of the various species

(Concluded on page 140)

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Phi Zeta

Gamma Chapter of Phi Zeta, national honorary veterinary fraternity, held its annual initiation banquet Jan. 19, 1943. The new initiates are Dr. Allen Packer, and Dr. Gabel H. Conner of the faculty; Raymond P. Fistler, Henry J. Griffiths, Forrest A. Stepp, Melvin W. Karber, Donald L. Spaulding, Richard C. Brager, D. Wayne Rawson, W. LaVerne Miller, and Joseph S. Quigley, members of the senior class; and Herbert G. Stoenner, Leon A. Kanegis, Eric W. Isakson, Robert W. Finch, Jack M. Jones, and Oris P. Idsvoog from the junior class.

FACULTY

Dr. Margaret Sloss was elected national president of Sigma Delta Epsilon, a scientific women's organization, in January, 1942.

Dr. C. D. Lee, associate professor of veterinary research, attended a meeting at the University of Illinois at Springfield Jan. 21-22 where he spoke on poultry disease control. He also presented a paper at the Nebraska State Veterinary meeting at Lincoln on Feb. 4 entitled "Poultry Practice," and on Feb. 8 presented a paper on "Chick Diseases" at the Cedar Valley veterinary meeting at Waterloo, Iowa.

Dr. I. A. Merchant, associate professor of veterinary hygiene, presented a paper at the Iowa Veterinary Medical Association meeting on January 26, 1943. His subject was "Timely Contributions of Veterinarians to Public Health."

Dr. S. H. McNutt, associate professor of veterinary research presented a paper on "A Partial Comparative Estimate of Various Methods of Growing Infectious Agents in Developing Chick Embryos" at the 23rd annual conference of Research Workers in Animal Diseases in North America at Chicago on Dec. 1.

Dr. McNutt also attended the 46th Annual Meeting of the Minnesota State

Medical Society at St. Paul, Jan. 11-12, and spoke on infectious diseases involving the nervous system of the pig.

ABSTRACTS

(Continued from page 137)

of coccidia infecting the chicken varies from 21 hours to 48 hours and the success or failure to control outbreaks depends to a large extent upon interruption of the life cycle at this stage. Upon the first indication of listlessness and inappetence in young growing stock, especially in the absence of respiratory symptoms, coccidiosis should be suspected and an autopsy at this time will usually disclose evidence of infection with one or several of the species described. Even lacking autopsy guidance, the logical procedure to follow is to advise shutting up the entire flock in quarters from which the droppings and litter can be removed every 24 hours for at least one week. Coincident with confining the chicks, a dose of Epsom salt should be administered either in a moist mash or in drinking water. The dose recommended for adult birds is one pound for each unit of 150, and this amount should be graduated according to age. During the critical spore period of the coccidial disease, the body defenses should be reinforced. For this purpose, milk in some form should be added to the regular ration. It is also advisable to withhold whole grains during this period. At the end of the seven day period of confinement, the flock should be placed on a new range preferably seeded to alfalfa which will insure a liberal quantity of fresh green feed, or failing this, fresh lawn clippings should be supplied. Oocysts either sporulated or nonsporulated cannot withstand the rigor of winter, and recovered adult fowls which harbor coccidia for long periods of time constitute the reservoir of infection for the young stock.

(Wickware, A. B. 1942. *The role of the practitioner in the control of coccidiosis. Can. Jour. Comp. Med and Vet Sci.* 6(12):352-357.)