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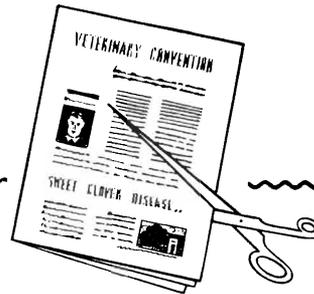
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ABSTRACTS



EFFECTS OF EXTENDING COLOSTRUM FEEDING PERIOD IN DAIRY CALVES. These studies were undertaken as a result of the recent investigation of vitamin A as a factor in control of diseases of young calves. Colostrum is many times as potent a source of vitamin A as normal milk. Since the normal cow produces much more colostrum than the calf can consume, it was deemed possible that this could be saved and consumed at later dates to give the calf this additional natural supply of vitamin A.

In these experiments the colostrum feeding period of 36 dairy calves was extended to 7 days. The calves were divided into 4 groups the more common breeds being equally represented. Group I received colostrum for the usual 3 day period; group II received colostrum for 7 days and a vitamin capsule daily for 21 days; group III received colostrum for 7 days and a vitamin capsule daily for 21 days; group IV received a vitamin capsule daily for 21 days.

Blood analysis showed that when the colostrum feeding period was extended, both vitamin A and carotene levels reached their highest point in 7 days and that the decline following the shift to normal milk was more gradual when colostrum was fed over the normal period. When both additional colostrum and a vitamin capsule were fed, the highest level of vitamin A in the blood plasma was maintained throughout the 21 day period. The average vitamin A content of the blood plasma of groups II and III was almost identical for the 21 days. The

change in the level of ascorbic acid in the blood was not significant with the extended colostrum feeding period.

During the course of the experiment 15 calves developed mild to moderate diarrhea which was not of the "white-scours" type. These were distributed as follows: Group I, 3; Group II, 3; Group III, 5; and Group IV, 4. At the end of the colostrum feeding period the calves were moved to the regular calf barn where the temperature was considerably lower. This may have contributed to the occurrence of the diarrhea. None of the cases of diarrhea developed during the period when they were receiving colostrum. In 11 of the 15 calves that had diarrhea there was a simultaneous drop in the blood-plasma vitamin A and carotene levels, which tended to rise after the condition had cleared up.

When considering the economy of using colostrum, these experiments suggest that this procedure may aid in the control of digestive diseases of calves.

[Sutton, T. S., and Kaeser, H. E.: *Some Physiological Effects of Extending the Colostrum Feeding Period of Dairy Calves*. *J. of Dairy Sci.* 39, (Jan. 1946): 13-26.]

RESERVOIRS OF INFECTION OF STREPTOCOCCUS AGALACTIAE.

Experiments were conducted in an attempt to determine the habitat of *Streptococcus agalactiae*, the organism so prevalent in cases of bovine mastitis. *Str. agalactiae* organisms were added to bedding straw and bovine feces in varying

amounts, and attempts were made to recover the organisms by culturing. It was found that about 100,000 organisms per gram were necessary for consistent recovery.

Samples were taken from the bedding of 4 infected cows. It was impossible to recover the organism from any of these samples. Sterile cotton swabs were used to rub the floor of the stalls of infected cows. Again it was impossible to recover the organism. Samples were taken from the hands of 8 persons doing machine milking and 2 persons doing hand milking in 4 different herds. The organism was recovered from the hands of the 2 hand milkers but not from the hands of the 8 persons doing machine milking.

Tests were conducted in which sterile bedding was inoculated with *Str. agalactiae*. Some of these cultures were held at room temperature and some were held at refrigerator temperature. Most of the organisms in the cultures held at room temperature were dead within 24 hours, but a few were found to survive for as long as 6 to 9 days. At refrigerator temperature the death rate was much slower, but most of the organisms were dead within a week.

The results of these studies seem to indicate that the organism does not survive in the bedding material for any great length of time and that the hands of hand milkers may serve as a reservoir of infection. Therefore, it is recommended that in hand-milked herds the milkers' hands should be scrubbed thoroughly and rinsed in chlorine (200 p.p.m.) before milking begins, that milkers should avoid getting milk on their hands and that discarded secretions from infected quarters should not be milked on to the floor.

[Spencer, G. R., McCarter, Janet, Beach, B. A.: *Reservoirs of Infection of Str. Agalactiae*. *Am. J. Vet. Res.*, 7:22, (January, 1946): 32-36.]

ABSORPTION, DISTRIBUTION AND EXCRETION OF STREPTOMYCIN. These tests were undertaken to determine the absorption, distribution, and

excretion of streptomycin which is a new antibiotic of a source similar to that of penicillin. Streptomycin offers new hope in combating such organisms as those in the *Eberthella*, *Klebsiella*, and *Salmonella* groups, *Pseudomonas aeruginosa*, *Shigella gallinarum*, *Brucella abortus*, *Proteus vulgaris*, *Pasteurella tularensis* and the tubercle bacillus.

These experiments traced the drug through the body after 3 different routes of administration which were: orally, parenterally and by inhalation. Oral administration of streptomycin in single doses of 400,000 to 500,000 units was not followed by any significant amount of the drug in the serum, and only occasionally could minute traces be demonstrated in the urine. A high concentration of the drug was found in the feces after administration by the oral route.

After inhalation of streptomycin the analysis of the serum and urine gave results similar to those following oral administration.

Results

In every instance where streptomycin was given parenterally in dosages of 100,000 units or more, demonstrable amounts remained in the serum for 12 hours or longer. Although, there was a higher initial serum level after intravenous injection, the levels at the end of 2 hours after intravenous, intramuscular, and subcutaneous injections were practically identical. The total excretion of streptomycin in the urine during the first 12 hours following parenteral administration varied between 41 and 86 percent of the dose administered. Between 12 and 24 hours after the injection, amounts up to 9 per cent of the dose were recovered from the urine.

The drug appeared in the spinal fluid of 3 subjects with meningitis and in the pleural fluid of 2 subjects with pleural effusions. In 2 cases streptomycin was demonstrated in the bile.

Renal tissue contained approximately twice as much streptomycin as did the serum, while smaller amounts were pre-

sent in the lung and heart muscles and only traces were found in the brain. The liver tissue contained no streptomycin.

[Adcock, John D. and Hettig, Robert A.: *Absorption, Distribution and Excretion of Streptomycin*. *Arch. Int. Med.*, 77: (1946) 179-195.]

BLOOD CHANGES IN RUMINANTS. The purpose of these investigations as to provide some available material regarding the changes in blood constituents during the course of some of the specific metabolic diseases.

A total of 134 lambs were maintained under varied conditions of feeding to determine a normal reading for cell volume, hemoglobin, sugar and non-protein nitrogen. The average range for cell volume was 28-34 per cent; for hemoglobin, 10-14 gm. per 100 cc.; 37-57 mg. per cent for sugar and 15-35 mg. per cent for non-protein nitrogen.

High cell volume and hemoglobin figures were obtained in 5 cases of starvation ketoses, in 5 out of 8 cases of acute

indigestion due to sudden feed changes and overloading of the fore-stomachs, in 5 out of 8 cases of enterotoxemia of lambs, in intestinal obstruction, and in 3 cases of generalized peritonitis. High cell volume figures were also obtained in cattle from 4 cases of acute indigestion, from severe bloat and from impaction of the abomasum.

Anemia with low cell volume and hemoglobin readings was found in 5 cases of cases of ruminal impaction in thin lambs, in 2 cases of chronic pneumonia in rams, in 1 case of fatty degeneration of the liver in a ram, and in 1 case of parturient hemoglobinemia in a cow.

In studies of the blood sugar levels, 7 out of 8 cases of acute indigestion in lambs showed hyperglycemia. One case showed hypoglycemia and 3 out of 7 cases of enterotoxemia showed hyperglycemia. In the 8 cases of acute intestinal obstruction, hyperglycemia was noted in 7 cases, and in 1 case the reading was normal. Hyperglycemia was also found in 4 cases of sub-acute indigestion, in 1 lamb with fatty

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degeneration of the liver, in 2 cases of intestinal atony and erysipelas arthritis, in 1 case of impaction of the rumen, in bloat and impaction of the abomasum in cattle and in a lamb with peritonitis which died 3 days later. In the latter case a hypoglycemia was noted just before death.

Hypoglycemia was found in lambs in 5 cases of starvation ketosis, in case of fascioliasis and in 1 case of cirrhosis of the liver.

In lambs, high non-protein nitrogen figures were obtained in 8 out of 9 cases of enterotoxemia, in 5 out of 9 cases of acute intestinal obstruction and in 4 out of 5 cases of starvation ketosis. The same was also true in 3 cases of peritonitis and in 3 cases of urinary calculi in lambs.

Low non-protein nitrogen readings were obtained in a case of fatty degeneration of the liver and in 1 out of 5 cases of sub-acute indigestion in lambs.

These studies suggest a possible value of a complete blood picture in the diagnosing of diseases in the ruminant, other than those conditions for which its value in diagnosis is already recognized.

[J. W. Briton: *Changes of the Blood Plasma Constituents in Ruminants*. *Corn. Vet.*, 36, (Jan. 1946):25-31]

INTRAVENOUS PROCAINE ANALGESIA. A publication by Allen in 1943 reported that large intravenous injections of plasma or saline into injured parts of the body resulted in the accumulation of fluids in these parts. This tended to disprove the then prevalent belief that there is generalized increased capillary permeability in cases of shock. Later investigations by Fine and Seligman, using injections of foreign protein and radioactive compounds, confirmed Allen's work.

These experiments were conducted as an extension of Lundy's work in relieving pruritus and jaundice patients by the injection of 20 cc. of a 0.1 per cent procaine hydrochloride solution intravenously. A young man suffered intense pain when standing or when lying on his back with his legs in certain positions. This was

due to a tender spot on his back. He was given a solution of 1 mg. procaine hydrochloride in 500 cc. of saline. This solution was given intravenously, slowly at first so as to observe any symptoms of sensitivity, and then at increased rates up to 20 cc. per minute until the limit of tolerance, as evidenced by slight vertigo, was reached. The rate of injection was then decreased to 5 cc. per minute. The pain and spasms were relieved within 15 minutes.

A similar solution was given to an old man with beginning arteriosclerotic gangrene of several toes. The time of injection took 1 hour. Pain was absent during the period of infusion and did not appear for 2 hours after completion of the infusion.

In another patient, a weak old woman with a large infected decubitus ulcer and osteomyelitis, a solution of 4 gm. of procaine hydrochloride in 1 liter of 5 per cent glucose solutions was injected by vein at a rate requiring 10 to 12 hours. This patient, who constantly cried of pain when left untreated, quieted down during the time of the injection. An intravenous infusion of 5 per cent glucose in water containing 10 gm. of procaine hydrochloride per liter was used on a 56-year-old man who had undergone the operation of nailing an impacted intracapsular fracture of the right femur. Injection was begun at the rate of 3 cc. per minute. The rate varied with the signs of toxicity until a total of 275 gm. of procaine hydrochloride had been administered during the 1 $\frac{1}{4}$ hours consumed by the operation. After the operation, the patient claimed that he could remember what was said and done during the operation but that he had felt not pain.

A similar injection, in addition to an intravenous injection of 3 $\frac{3}{4}$ gm. sodium amytal, was made into a 37-year-old housewife undergoing an operation for biliary calculi. During the 1 $\frac{3}{4}$ hours required by the operation, 4 $\frac{1}{4}$ gm. of procaine hydrochloride was administered, and the patient apparently enjoyed a normal sleep with complete muscular relaxation.

These experiments set forth a new hope

for the successful use of procaine hydrochloride intravenously in reducing many forms of pain in a safe and prolonged manner.

[Allen, Fredrick M. Crossman, Lyman Weeks, and Lyons L. Vosbruy: *Intravenous Procaine Analgesia, Cur. Res. in Anes. and Anal.* 25 (Jan.-Feb. 1946): 1-9]

DDT for horn fly control. During the summer of 1945 tests were conducted in 16 Kansas counties to determine the effectiveness of DDT in the control of the horn fly, an insect pest that according to estimates made from the results of this study, cost Kansas cattle raisers about \$10,000,000 in 1945.

The DDT used was obtained in the form of a water-dispersible powder and was diluted with water to give a 0.2 per cent suspension for sprays and a 0.1 per cent suspension for dipping. Power sprayers equipped with 3-nozzle or 4-nozzle brooms and capable of maintaining a constant pressure of 400 to 500 pounds per square inch were used. Approximately 2 quarts of spray was applied to each adult animal and 1 quart to each calf, covering the head, neck, and upper part of the body. The best results were obtained when the nozzles were held 6 to 12 inches from the animal's body.

Half of the animals were sprayed in each of 2 herds. Results showed that where all the animals in the herd were sprayed the average duration of effectiveness increased with each treatment, while such was not true where only half the animals in the herd were sprayed. Consequently, it proved more economical to spray the entire herd each time.

Four dippings with a 0.1 per cent DDT suspension were effective for as long as were the 4 sprayings with 0.2 per cent DDT. The first application was effective for 18 days, the second and third for 21 days, and the fourth for 36 days. Dipping required more DDT than did the spray method.

Comparisons in weight gains for treated and untreated animals were made. On 3 ranches cows treated over a period of 3½

to 5 months gained from 42.2 to 51 pounds and treated calves from 46.9 to 70 pounds more than the untreated animals. In a 60 day test each of 601 animals that were sprayed 3 times gained 30 pounds more per animal than the 50 untreated animals.

The average additional weight gains for each pound of DDT used were: ranch I, 1,285 pounds; ranch II, 1,202 pounds; ranch III, 2,306 pounds; and ranch IV, 430 pounds.

A 5 per cent DDT emulsion was sprayed on 9 barns, and these barns were practically free of houseflies and stable flies for 73 to 98 days.

[Laake, E. W.: *DDT for the Control of the Horn Fly in Kansas, J. Ec. Ent.*, 39, (1946):65-68]

AVMA Research Fund

The American Veterinary Medical Association announces its intention to seek contributions for a fund to support research in veterinary science. President Farquharson has appointed a special committee, under the chairmanship of the treasurer of the association, to inaugurate a campaign at once. As its first task, the committee hopes to collect a fund of at least \$100,000 from members of the profession. It is expected that the profession will manifest confidence in the plan by making a substantial cash contribution before larger contributions are solicited from others. The committee expects to approach animal lovers, livestock owners, and commercial organizations interested, for contributions toward a much larger sum. Contributions to this fund may properly be deducted when computing income taxes.

The objects of this fund are two-fold:

1. To advance knowledge in both the basic and the applied aspects of veterinary science.

2. To assist in the training of promising young scientists in these fields by affording them financial support, in the form of fellowships, for graduate education.

The funds obtained will be administered by the Research Council of the Amer-

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ican Veterinary Medical Association. Applicants for fellowships supported by this fund must be citizens of the United States or Canada, they must have a veterinary degree from an institution approved by the American Veterinary Medical Association, they must have demonstrated ability or promise of ability in the field of their choice and they must be accepted as graduate students by an educational institution approved for the purpose by the Research Council. These fellowships will not be limited to veterinary institutions. Fellows may work wherever facilities are adequate and competent supervision of their work is available.

Further details of the plan will be announced soon in the veterinary press and at veterinary meetings. In due time, all graduate veterinarians in North America will be approached individually for contributions, and it is hoped that they will respond liberally. The goal for this group may be attained, and even surpassed, by a minimum donation of 10 dollars by each veterinarian.

So far as we know, such a fund has never been sought from any professional group. It is hoped that the profession will rise to the occasion and demonstrate to others that it has pride and faith in its work and an earnest desire to improve its services through wider knowledge of animal diseases and better training for its members. We cannot expect others to support such efforts with liberality unless they are impressed with our own seriousness of purpose.

Veterinarians are asked to give careful thought to this matter and be ready to respond when called upon to do so.

Only a few tens of thousands of molecules have been identified as occurring in nature, but now nearly 1,000,000 new kinds of molecules have been produced in the laboratories.

The word vitamin originally was spelled *vitamine*: *vita* for life, and *amine* for the amino acids.

DDT Toxicity

In a study of the toxic effects of the new insecticide DDT, the U. S. Public Health Service administered the preparation by inunction, by stomach tube and by admixture in the diet to 117 animals of 9 species including rats, rabbits, chickens, dogs, sheep, cows and a horse.

The only symptom produced was muscular tremors. Death resulted in the small mammals in from one to several weeks from a high level of administration. There were no appreciable microscopic lesions but microscopic examination revealed central necrosis of the liver consistently and, exceptionally, changes in the muscles and the thyroid gland.

A cedar-patterned, ready pasted wallpaper contains DDT insecticide. Moths, ants, flies, mosquitoes and silverfish are said to die shortly after coming in contact with the wallpaper. It is non-hazardous to human beings or domestic animals. The DDT does not show on the paper and will not rub off.

German bread, coated with a 50 per cent water emulsion of polyvinyl acetate containing various proportions of chalk, talc, and lithopene, showed only slight signs of interior mold growth after 8 months.

According to statistics published by the Department of Agriculture at Washington, D. C., the aggregate value of farm animals in the U. S. has declined very materially in recent years. At the present time the value of these animals is \$755,580,597 less than it was in 1893!

Contrary to common belief, heart disease is no more prevalent among medical men than it is among laymen.