THERAPEUTIC MANAGEMENT IN SECOND GENERATION ANTICOAGULANT RODENTICIDE POISONING

Adriana AMFIM, Victor VĂTAVU
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: amfimadrina@yahoo.com, ushmv. padure.adriana@spiruharet.ro

Abstract

Rodenticides poisoning is a relatively common pathology in veterinary casuistry, its diagnosis is established mainly based on history or clinical signs, rarely based on laboratory examinations.

The purpose of the research was to determine the most effective therapeutic protocols used to treat poisoning by rodenticides second generation of the dog. To fulfil the purpose, the toxic aetiology casuistry present in a veterinary clinic during the year was monitored.

Of the more than 600 cases with diverse pathology, for a total of 115 cases was established the presumptive diagnosis of poisoning (18.6 %). Of these, 31 cases (27.6 %) were represented by rodenticides poisoning.

The mean treatment duration should be between 14 to 21 days because rodenticides second generation, have high persistence in the body, and after the study undertaken we were able to observe that clinical signs may recur at early discontinuation.

Keywords: *anticoagulant, second generation, therapeutic protocol, rodenticides*

Introduction

Rodenticides anticoagulants are involved in more animal exposures and death than any other category of pesticides. Rodent species have since developed resistance to it, so compounds effective against warfarin-resistant rodents have been developed. All anticoagulants have the basic coumarin or indanedione nucleus. The "first-generation" anticoagulants such as coumafuryl warfarin, pindone, coumachlor, isovaleryl indanedione, require multiple feedings to result in toxicity. The "intermediate" anticoagulants, chlorophacinone and in particular diphacinone, require fewer feedings than "first-generation" chemicals, and thus are more toxic to non-target species. The "second-generation" anticoagulants (brodifacoum, bromadiolone, difethiolone) are highly toxic to non-target species (dogs, cats, livestock, or wildlife) after a single feeding. Secondary poisoning in non-target animal species from anticoagulants has also been documented (3).

Dogs are intoxicated more commonly than cats or other domestic animals. Anticoagulant rodenticides act by inhibiting the recycling of vitamin K_1 to induce coagulopathy, and these animals may spontaneously bleed from any part of the body. These anticoagulant rodenticides interferes with the normal synthesis of coagulation proteins (factors I, II, VII, IX, and X) in the liver (1). New products have a longer biologic half-life and, therefore, prolonged effects (which require prolonged treatment). For example, the half-life in canine plasma of warfarin is 15 h, diphacinone is 5 days, and bromadiolone is 6 days, with maximum effects estimated at 12-15 days. Brodifacoum may continue to be detectable in serum for up to 24 days. All of them may be detected in liver even after serum levels drop (2).

Toxicosis is dependent on the dose and the susceptibility of the species. The very young and the very old are considered to be more susceptible. Initial signs include lethargy, weakness, anorexia. Bleeding into the joints causes lameness and swollen joints. Epistaxis, rectal bleeding, and bruising can be present but these signs are not the most common presentations. Animals are often found acutely dead. Bleeding into the thoracic cavity is quite common (4).

Diagnosis is established based on history, clinical signs, abnormalities observed in clinical laboratory test (anaemia, hypoproteinemia, thrombocytopenia, elevated coagulation times, etc.). Treatment involves decontamination, emetics, activated charcoal and a saline cathartic for preventing absorption. If an animal is symptomatic, treatment is symptomatic and supportive. Whole blood transfusions or plasma may be required to replace clotting factors, or Vitamin K1, which is dosed at 3-5 mg/kg, divided dosage. Although warfarin may only require 14 days of prophylactic therapy, many of the newer anticoagulants will require at least 30 days of treatment (5).

Materials and methods

Monitoring of anticoagulant rodenticides poisoning in dogs was carried for a period of one year and four month (January 2014-May 2015) in a veterinary practice, taking into account the age of the animal, the clinical condition and response to treatment. Monitoring the casuistry meant:

- selecting the casuistry with toxic aetiology;
- selecting the casuistry of intoxication with anticoagulant rodenticides based on the clinical and laboratory diagnostic;
- clinical diagnostic;
- complementary diagnostic tests (clinical chemistry and haematology);
- post-mortem diagnostic;
- toxicological diagnostic (CG-MS).

The casuistry with toxic aetiology selection was made based on clinical and laboratory diagnosis.

For all patients with clinical diagnosis of poisoning, confirmed by laboratory tests, the treatment response was monitored, as well as the correlations between the time from ingestion of toxic, and the time when establishing specific treatment, and response to treatment.

For the ***clinical*** diagnostic of intoxication, it was taken into account general symptomatology, medical history and specific clinical signs encountered in this type of poisoning.

Complementary examinations performed to establish a diagnostic of poisoning by rodenticides were performed by making coagulative profile abnormalities (blade coagulation tests directly in the slide), or by using special VETube ACT test tube to determine the clotting time.

Post-mortem examinations were performed by the standard method of necropsy. Plasma, frozen stomach contents and a frozen post-mortem liver sample was checked for the presence of anticoagulants.

Toxicological examinations were conducted in IDSA, using liquid chromatography coupled with mass spectrometry (LC-MS) method, with different types of ionization, particularly ESI (electrospray ionization) and APCI (atmospheric pressure chemical ionization).

Results and discussions

Monitoring of casuistry (anticoagulant rodenticides poisoning) was made during the study period chosen, taking into account the animal's age, clinical condition and response to treatment.

During the chosen period of study, there was a total of 115 cases of alleged toxic or toxic aetiology. Among them, a total of 31 cases (26.95%) were anticoagulant rodenticides poisoning cases (Fig. 1). Thus, out of the 31 dogs poisoned with anticoagulant rodenticides, 8 (25.8%) died, although on them were used intensive care/resuscitation manoeuvres (Fig. 2).

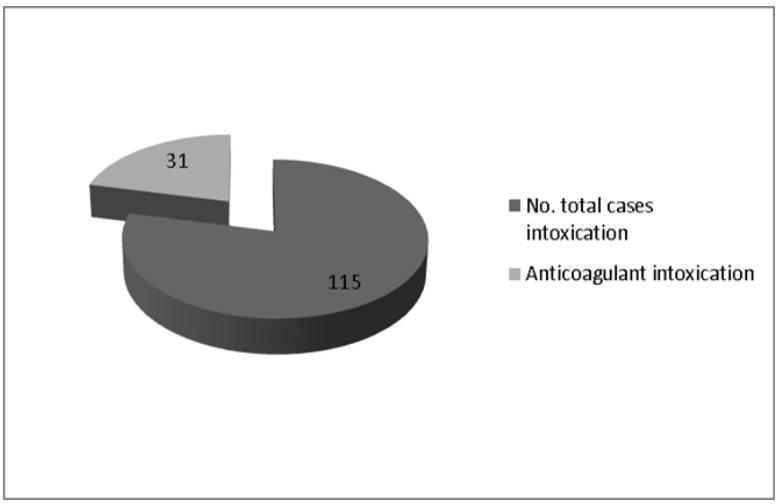


Fig. 1. *The incidence of anticoagulant poisoning in dogs*

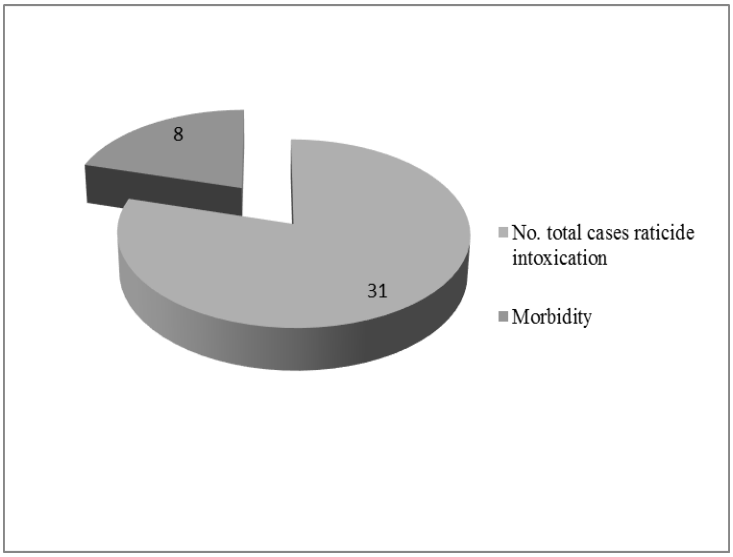


Fig. 2. *The percentage of mortality in intoxications with anticoagulant rodenticides*

- necropsy was performed for certainty diagnostic in two cases (positive diagnosis for second generation of anticoagulant rodenticides);
- of the 31 cases, 14 had received oral Phytomenadione (45.1%), at doses of 1-5 mg/kg;
- 1 of the 31 dogs had not received any Phytomenadione treatment (later died);
- to cases who received the lower dose than necessary, clinical signs have worsened (bleeding, bruising and impairment of health). To one case was recorded exitus due to insufficient doses received;
- 1 case of the 31 received intravenous Phytomenadione (anaphylactic shock present), with recuperation after emergency treatment applied;
- 1 case from a total of 31 received Phytomenadione i.m. (anaphylactic shock and exitus by cardiac arrest) resuscitation was unsuccessful;
- two dogs received Phytomenadione only 3 or 6 days, and clinical signs recurred (the death has occurred in only one case);
- one of the dogs was treated with Vitamin K3 (menadione) (the treatment was not successful);
- for two cases gastric lavage was performed. A case has survived (treatment, post lavage, was made with Phytomenadione dose of 5 mg/kg/24h, 21 days). The other died (was made an autopsy at IDSA; they found three types of rodenticides involved in toxicosis which leads to the conclusion that the absorption of toxic substance was too quick to be able on a longer period of time to intervene successfully (Fig. 3, 4);

Fig. 3. *Metis (case no. 16) necropsy – haemoperitoneum, non-coagulated blood present in the peritoneal cavity, liver friability (original)*

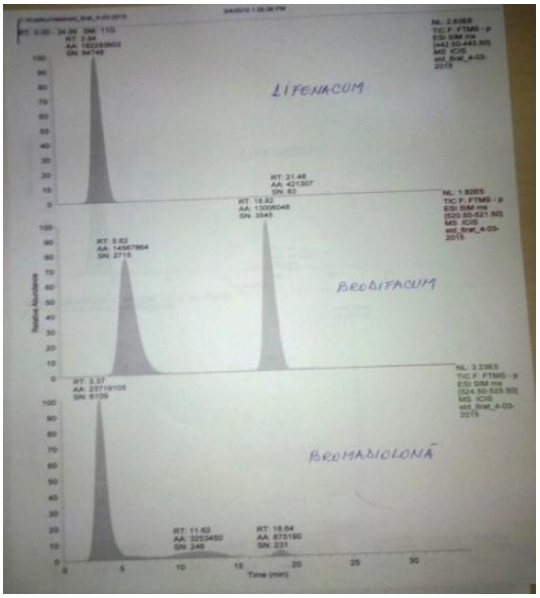


Fig. 4. *The confirmation of diagnosis of poisoning by toxicological tests (chromatography; IDSA)*

- for 3 cases, blood transfusion was made;
- 2 females with advanced pregnancy, aborted (unviable foetuses in both cases);

- one case treated with Vitamin K1 for only four days, died (pulmonary aedema);
- in cases in which Phytomenadione could not be administered orally (anesthesia and surgery, vomiting incoercible, etc.), and it was administrated subcutaneous, the results were positive;
- one case receiving treatment with Dexamethasone, which led to worsening of bleeding, including the injection site of the subcutaneous injections;
- one of the poisoned dogs received a large amount of intravenous fluid infusion, leading to increased blood pressure and severe bleeding. In his case, heart problems were also detected. After treating hypertension and heart disease, along with treatment for poisoning by rodenticides, the evolution was favourable;
- the therapeutic protocol in this intoxication has followed several aspects (Table 1).

Table 1

Vitamin K1 therapy in second generation anticoagulant intoxications

No. case	Clotting times (initial)	Treatment		Patient assessment/ clotting times (5,10, 21 days)	Duration of treatment	Finaly evaluation
		Transfusion	Antidote			
1.	Yes=3' 26''	No	Yes (PO)	At 6 days (=2' 11'')	20 days	Recuperation
2.	No	No	No	No	-	Exitus
3.	Yes=6' 10''	No	Yes (PO)	At 5 days (= 2')	15 days	Recuperation
4.	No	No	Yes (i.v.)	No	20 days	Recuperation
5.	No	No	Yes (PO)	No	20 days	-
6.	Yes=4' 34''	No	Yes (PO)	6 days (without therapy Vit K)	14 days	Hematemesis, melena
7.	Yes=9'	No	Yes (PO)	9 days (clotting times in physiological parameters)	21 days	Recuperation
8.	Yes=10'	No	Yes (PO)	-	-	Exitus
9.	Yes=3'40''	No	Yes (s.c.)	26 days (1'25'')	21 days	Recuperation
10.	No	No	Yes (PO);(H_2O_2) *emetic solution	7 days (status impaired)	14 days	Recuperation
1m1.	Yes=7'20''	Yes (85 ml blood)	Yes (PO)	24 h (2' 30''); 5 days (1' 57 '')	14 days	Recuperation
12.	No	No	Yes (PO)	-	-	Exitus *necropsy; ** toxicological tests

13.	Yes=4 '25"	No	Yes (PO)	7 days (status impaired)	21 days	Exitus
14.	No	Yes =20 ml/kg	Yes (PO)	No	30 days	-
15.	Yes=4'51"	No	Yes (s.c.)	At 24 h	21 days	-
16.	No	No	Yes (s.c.)	-	-	At 40'= existus by cardio respiratory collapse, *necropsy
17.	No	Yes	Yes (PO)	At 24 h (= 9' 25 "); la 4 days =2'50"	30 days	-
18.	No	No	Yes (PO)	At 24 h, clotting time=3'20"	25 days	-
19.	No	No	Yes (s.c.)	At 5 days clinical evaluation	12 days	-
20.	No	No	Yes (i.m.)	-	-	At 5' days existus by cardio respiratory collapse, *necropsy
21.	No	No	Yes (Etamsilat Adrenostazi, Vit. K) (s.c.)	-	-	–
22.	Yes=5'40"	No	Yes (PO)	At 3 days (hematoma auricular); *increasing doses at 5 mg/kg/12 h, 3 days (reexaminatio n); **After 3 days decrease the doses at 5 mg/kg/24 h	14 days	-
23.	No	No	Yes (PO)	5 days treatment	-	Recuperation
24.	No	No	No*Gastric lavage	-	-	Existus by cardio respiratory collapse, *necropsy
25.	Yes=4'04	No	Yes (PO)	-	14 days	-
26.	No	No	Yes (PO)	-	-	Decease
27.	Yes=6'15	No	Yes (PO)	-	14 days	-

28.	Yes=5'	No	Yes (PO)	At 10 days (=2'30")	21 days	-
29.	Yes= 5'10"	No	Yes (PO)	At 10 days (clinic – good general condition)	10 days	-
30.	Yes= 6'	Yes	Yes (PO)	-	21 days	-
31.	No	No	Yes (s.c.)	-	14 days	-

Conclusions

1. The purpose of the research was to determine the most effective therapeutic protocols used to treat dog poisoning by rodenticides second a generation. To fulfil the purpose, toxic etiology casuistry present in a veterinary clinic during the year was monitored.

2. Of the more than 600 cases with diverse pathology, for a total of 115 cases presumptive diagnosis of poisoning was established (18.6%).

3. Of these, 31 cases (27.6%) were represented by poisoning rodenticides.

4. The mean treatment duration should be between 14 to 21 days because rodenticides second generation have high persistence in the body, and after the study undertaken we were observe that the clinical signs may recur at early discontinuation.

References

1. Ettinger, S.J.; Feldman, E.C., 2009, *Textbook of veterinary Internal Medicine*, Elsevier Saunders.

2. Hodgson, E., 2004, *A textbook of Modern Toxicology*, Third Edition, Wiley Interscience.

3. http://www.merckvetmanual.com/mvm/toxicology/rodenticide_poisoning /anticoagulant_rodenticides_warfarin_and_congeners.html.).

4. (http://www.vspn.org/Library/misc/VSPN_M01287.htm.

5. http://www.vspn.org/Library/misc/VSPN_M01287.htm).

DETERMINING THE TOTAL NUMBER OF RUMINAL INFUSORIA ON SMALL RUMINANTS

Victor CĂLIN, Tănase PETRUȚ
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: victorcalin2006@yahoo.com

Abstract

Studies on ruminal microflora content on small ruminants were made in different feed conditions to observe in which way this food influences the development of these microorganisms population. It is well-known that disorganization of this microflora leads to animal incapacity to capitalize in optimal conditions the ingested food.

Eight Spanca adults rams with an average weight of 50 kg, divided in two groups were used for this experiment.

Group 1 consisted in rams feed ad libitum with natural hay, and in the second group the rams were given concentrated feed in a rate of 80% and natural hay in a rate of 20%.

The study consisted in determining the total number of infusers from the freshly harvested ruminal content in which the infusers were fixed with formaldehyde, 1% solution, measure 1:5.

The research on ruminal microflora made on sheep showed an oscillation of the twin number on milliliter of ruminal content. This oscillation was conditioned by rams', physiological state and by the component of the feed ratio given to the two groups of rams used for study.

***Keywords*:** *ruminal microflora, microorganisms, small ruminants*

Introduction

Rumen microbial population depends on the food consumed and it is impossible to generalize the relationship between microflora and age. It is significant that in the young animal flora producing lactic acid is predominant, and along the way, from eating solid food microbial population becomes more diverse, producing volatile fatty acids (Ramos S., et al., 2009).

Also ruminal secretion of urea and salts in saliva influence the microbial activity. Microbial growth is influenced by the speed of absorption of fermentation products, as well as the physical condition of the feed, time and rate of administration of food (Thauer, R. K., et al., 2008).

Diets exert an influence not only by its coarse composition, the carbohydrates and proteins, but also the content of microelements. The mentioned factors

influence the symbiotic populations constant development both in numbers and in terms of variability of existing species. Changing the biotype optimal conditions will lead to changes in the flora and fauna, but there is a trend of stability and recurrence of that (Cantalapiedra-Hijar G., et al., 2009).

Materials and methods

For the study conducted was used as biological material ruminal content freshly harvested from sheep kept in the same microclimate conditions and fed on a balanced ration throughout the examination.

The animals used in the experiment were fully grown rams Spanca breed, with an average weight of 50 kg; divided into two groups of 4 animals.

Lot 1 consisted of 4 rams fed ad libitum on natural hay.

Group 2 consisted of 4 rams that were fed 80% on concentrated and 20% on natural hay to stimulate ruminal motility.

Ruminal juice harvesting by catheterization

Catheterization was performed using a probe inserted through the opening mouth of the animal to the rumen juice sucking the needed quantity. The method has the advantage that leaves no scars and does not injure the animal. It has also the advantage of capturing the flora in full activity, being able to grasp such a difference depending on feed type.

Harvesting took place in the morning before the rams to receive food, after a diet of 12 hours, but with free access to water.

Harvesting was performed by using a probe equipped with a 200 ml syringe for the ruminal juice to be aspirated.

Harvested juice was collected and stored in isotherm containers at 38ºC.

Determining the total number of rumen infusoria

Ruminal juice collected and then filtered was diluted with formaldehyde 1% in a ratio of 1:5, thus 1ml ruminal juice +4ml formaldehyde 1%. The counting room is done ready applying a drop of this solution with the help of a dropper. The counting room (Fuchs-Rosenthal) is covered with a glass slide and set on the microscope, counting all infusoria found within the counting room network. All infusoria within network were counted without taking into account their size.

Calculation of the total number of infusoria/ml was performed using the formula in which

$$N = \frac{\text{N1 x 5 } x \text{ 1000}}{\text{3,2}} = N1 \; x \; 1562{,}5;$$

– N – number of infusoria/ml ruminal juice;
– N1 – number of total infusoria;
– 5 – ruminal juice dilution;
– 3,2 – counting chamber volume in μ;
– 1000 – conversion factor.

Results and discussions

The aim of the study was to determine the total number of ruminal infusoria being well-known that rich infusoria content denotes a good digestive activity and a better use of nutrients in the ration. Data from the monitoring carried out during research render the number of ruminal contents infusion of rams fed with natural grass (Table 1) and in those fed with concentrates (Table 2).

Table 1

Number of total infusoria/ml ruminal contents if natural feeding hay (lot 1)

Sheep nr.	Infusors count	Number of infusoria/ml ruminal contents
1.	346	540.625
2.	206	321.875
3.	225	351.563
4.	194	303.125

The study observed that the total infusoria number ranged from 303.125 inf/ml ruminal contents to 540.625 inf. with an average of 379.297 inf/ml ruminal contents if natural feeding hay (Table 1; Fig.1).

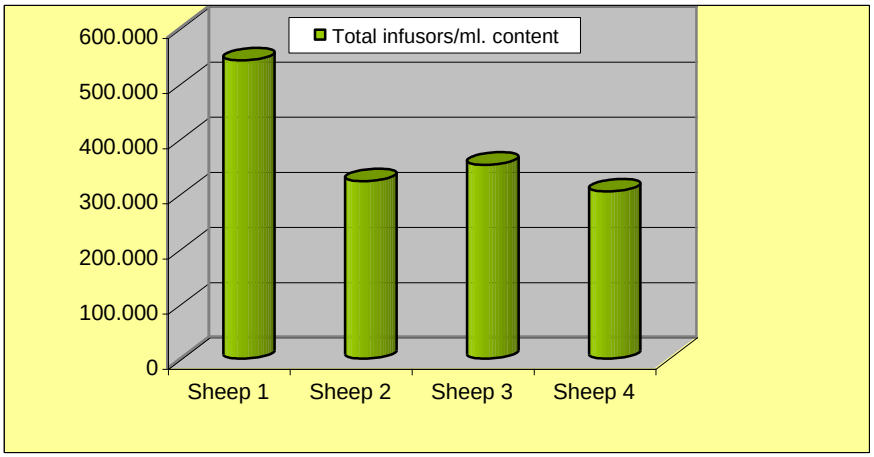


Fig. 1. *Total infusoria/ml ruminal contents in group 1*

Comparing the average value obtained from this study with data from the literature from animals fed the same is estimated that this value is lower, which is due to the mode used in the practice of monitoring, namely the harvesting of content being made after 12 hours of digestive rest.

This digestive rest, as it turns out, leads to the disappearance of a number of infusoria.

If feeding concentrates 80% of the ration consumption, ruminal flora is significantly influ enced (Table 2; Fig. 2).

Table 2

Number of total infusoria/ml ruminal contents if natural feeding hay (lot 2)

Sheep nr.	Infusors count	Number of infusoria / ml ruminal contents
1.	226	353.125
2.	165	257.812
3.	112	175.000
4.	175	273.438

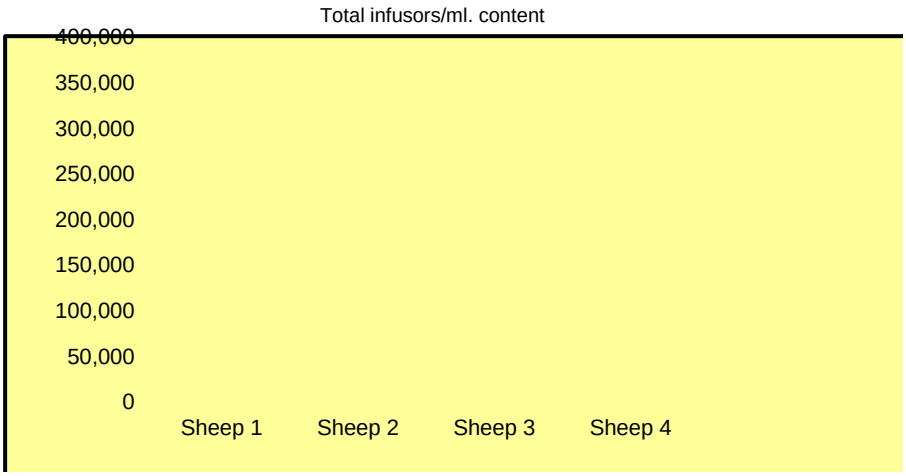


Fig. 2. *Total infusoria/ml ruminal contents in group 2*

The data presented above is a decrease in the total number to 264.844 inf/ml on average content in group 2 versus total infusoria found in male fed exclusively on natural hay. This decrease is observed in all individuals in this group, the decrease being due to diet.

It should be noted, however, that the ruminal infusoria numeric ranges depend on diet.

Conclusions

1. The testing was carried out on two groups of sheep Spanca breed.

2. The ruminal flora varies in quality and quantity according to the ration structure and physiological state of animals.

3. The ruminal flora is influenced by ration structure: when the ration composed exclusively of fibres found a large number of infusors (379.297 infusors/ml ruminal contents on average in group 1) compared to ration consisting of concentrated feed where the number of infusion dropped (264.844 infusorsml ruminal contents on average in group 2).

References

1. Cantalapiedra-Hijar, G.; Yáñez-Ruiz, D.R.; Martín-García, A.I.; Molina-Alcaide, E., 2009, "Effects of forage: concentrate ratio and forage type on apparent digestibility, ruminal fermentation, and microbial growth in goats", *Applied and Environmental Microbiology*, vol. 87, no. 2, 622-631.

2. Ramos, S.; Tejido, M.L.; Martinez, M.E.; Ranilla, M.J.; Carro, M.D., 2009, "Microbial protein synthesis, ruminal digestion, microbial populations, and nitrogen balance in sheep fed diets varying in forage-to-concentrate ratio and type of forage", *Journal of Animal Science*, vol. 87(9), 2924-2934.

3. Thauer, R.K.; Kaster, A.K.; Seedorf, H.; Buckel, W.; Hedderich, R., 2008, "Methanogenic Archaea: ecologically relevant differences in energy conservation", *Nature Reviews Microbiology* 6, 579-591.

EFFECTS OF HEAT STRESS ON SOME PHYSIOLOGICAL INDICATORS TO THE COBB BROILERS

Cristina DINU, Daniel CUCA
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: dinucristin@yahoo.com

Abstract

Four batches of Cobb broilers aged 14 days and average body weight of 480g, grown in terms of age-appropriate diets were exposed to elevated ambient temperatures 38º-40ºC, varying by experimental scheme for a period of three weeks. Were determined weekly body weight, rectal temperature, hematocrit and haemoglobin and the results were compared with those obtained in the control group. Significant decreases in body weight of 7% in group 3 experimental starting in the second week. Rectal temperature increased on average by 5.5% in groups 2 and 3, but to group 4 the increase was insignificant. The largest decrease in hematocrit value was recorded in the 35th day of the experiment and was 17.3% and 15.4% for groups 2 and 4. Also a significant decrease in haemoglobin was recorded in the 35th experimental day, respectively 9.4% to 6.2% for groups 2 and 4.

It has been found that the adaptation to the environment at higher temperature has been achieved by reducing the energy metabolism on the basis of the low food ingestion.

***Keywords*:** *heat stress, Cobb broilers, haemoglobin, hematocrit*

Introduction

Neuroendocrine mechanisms initiated to the action of various stressors are relatively stereotyped: the first is simpatico-adrenal system and then second the hypothalamic-adenohypophysis-adrenal system that are able to preserve or restore homeostasis.

In many geographical areas in the world, heat stress is an important aggressor factor for the welfare and productivity of birds. Climate changes in recent years that have affected Romania forcing the bird's body to adapt to the new conditions, especially in the hen farming households.

Birds perceive environmental stimuli as stress differently, depending on their individual experience of duration, intensity and frequency of contact with those stimuli, depending on the degree of phenotypic expression of genotype to the action of a stimulus (1, 2, 3). In this context the phenomenon of heat tolerance can be a manifestation of the ability of certain races of birds to considerably increase

heat loss by convection and radiation or may be a genetic advantage. Thermotolerance can be increased by birds acclimated after repeated exposure to high ambient temperatures (4, 5). The study looked at adaptive physiological response of birds under repeated exposure to heat stress.

Materials and methods

From a Cobb population were selected 120 broilers males and females aged 14 days having the average body weight (of 480 g) and were formed 4 groups of 30 chickens each. The experimental period was three weeks.

At first group, control, the breeding program was the usual 23 hours light from 24 hours, standard diet for broilers (type starter, grower and finisher).

For starter type protein diet was 23% (lysine + methionine), for protein grower diet type was 21% (lysine + methionine) and for protein finisher diet type was 19%. For the first group, the environmental temperature was 30°C during the first week, the second week 28ºC and 26ºC during the third week and a relative humidity of 55-65%. They were given food and water ad libitum. Weekly, body weight, rectal temperature, hematocrit, and haemoglobin were determined.

In the second group, the program of environmental temperature was the same but for two hours weekly (between 12-14 p.m.), broilers were exposed to 38ºC. On the last day experimental ambient temperature was increased to 40°C for two hours. At 30-45 minutes after each weekly exposure, the following determinations were made: body weight, rectal temperature, hematocrit, and haemoglobin.

Broilers of the third group had the same program ambient temperature as those of the control group, but were exposed daily for two hours (at noon, between 12-14 p.m.) at an environmental temperature of 38ºC. Also the last day of the experiment the environmental temperature was raised to 40°C for two hours. Adaptive capacity of broilers was assessed by physiological indicators determined the same week as the other groups on days 21, 28 and 35.

Last group, the fourth group, was exposed daily for one hour at ambient temperature of 38ºC and in the rest of the time ambient temperature coincided with the control group. In the 35th day of the experiment, ambient temperature was increased to 40°C for two hours. They determined the same physiological parameters and under the same conditions.

Blood samples were collected individually from the axillary vein, the needle with EDTA, the hematocrit have used capillary tubes heparinised which were microcentrifuged to microhematocrit for 3 minutes, and the haemoglobin, the blood was analyzed by the colorimetric method with cianmethemoglobin. The data were interpreted statistically using Student's t test.

Results and discussions

In heat stress conditions thermoregulation in birds is mainly done by decreasing thermogenesis, because the possibilities for thermolysis (radiation, convection, conduction) are lower compared to mammals. Exposure of birds to

heat stress has as direct effect a reduction in energy metabolism by decreasing feed intake and feed efficiency with delayed growth rate. In order to increase the birds' bodies resistance to the action of the heat stress, the development of a thermotolerance by their acclimatization to high ambient temperatures was observed.

Exposures broiler groups 2 (weekly 38ºC) and 3 (daily at 38ºC), carried out over two hours, resulted in a significant increase (mean 5.5%) in the value of rectal temperature recorded at 21 to 28 experimental days. For broilers group 4, daily exposures at 38ºC ambient temperature over one hour, did not cause significant changes in body temperature value (Fig. 1).

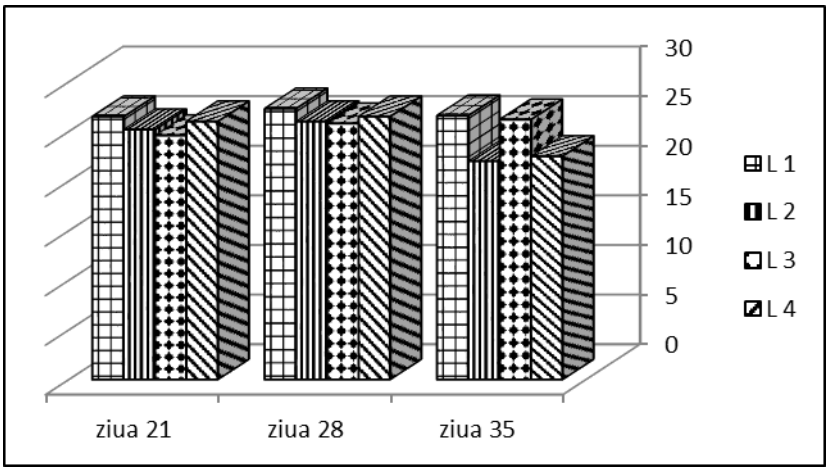


Fig. 1. *Rectal temperature variation depending on ambient temperature to Cobb broilers*

In the 35th experimental day when thermal shock was induced by rising the ambient temperature to 40°C for two hours there have been significant increases in rectal temperature in broilers from groups 2 and 4, respectively of 6.5% and 5.6%. In broilers from group 3, the variation of rectal temperature was not significant because daily exposure for 2 hours at 38ºC ambient temperature over a period of three weeks was achieving experimental heat conditioning.

It is known that up to the age of 35 days broilers do not have full coverage body plumage and better heat loss by radiation is possible. This can be correlated with the ability to adapt to thermal shock, when repeated exposure to heat has an optimal duration and frequency for stimulating the thermotolerance of the cellular level.

Conditioning of heat is associated with the synthesis in the peripheral blood leukocytes of polypeptides known as heat shock proteins (HSP), but also the increased synthesis of glutathione and glycoprotein in the liver tissue (5).

The upward fluctuations of ambient temperature to install a thermal discomfort which causes decreased appetite and interest in food, appearance of

immobility states and decreased body weight. The exposures two hours daily to ambient temperatures of 38ºC during the three weeks of experimented, such as group 3, resulted in decreased feed consumption and, therefore, reduced heat production from the digestion process (Fig. 2).

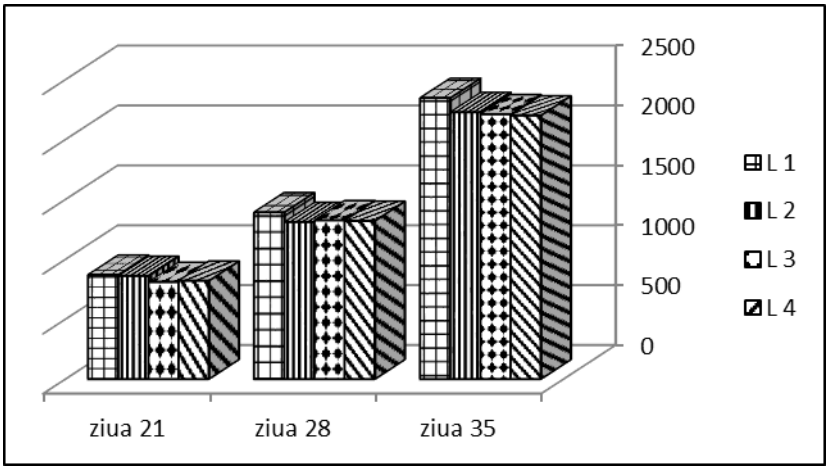


Fig. 2. *Variation in body weight depending on the ambient temperature to Cobb broilers*

Also increasing the ambient temperature variations have led to a rise in water consumption favouring a rapid intestinal transit of the fodder such remained undigested. Thus, body weight decreased significantly in all experimental groups.

In group 2 with 6% after 28 days and 5% to 35 days. In group 4 with 5.2% to 28 days and 6% to 35 days.

Daily exposure to group 3, at an ambient temperature of 38ºC for two hours (between the hours 12-14 p.m.) resulted in a significant decrease in body weight, respectively 7% after 21 days and 5% after 28 days.

Increased intestinal motility, dehydration, absorption and utilization defective of protein (meaning intensification of protidic catabolism and mobilization of functional and structural proteins) justify quantitative decreased of haemoglobin and hematocrit (Fig. 3 and 4).

Hematocrit value distinct significantly decreased in day 35 of the experiment, 17.3% for group 2, and 15.4% for group 4.

In group 3 the hematocrit value significantly decreased, 7.2% at day 21 and 5.5% on the 28th day and insignificantly decreased last day of the experiment (Fig. 3).

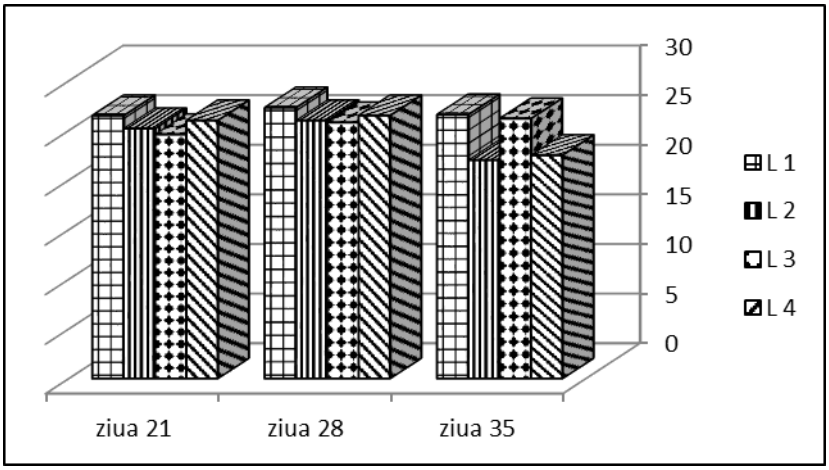


Fig. 3. *Hematocrit variation depending on ambient temperature to Cobb broilers*

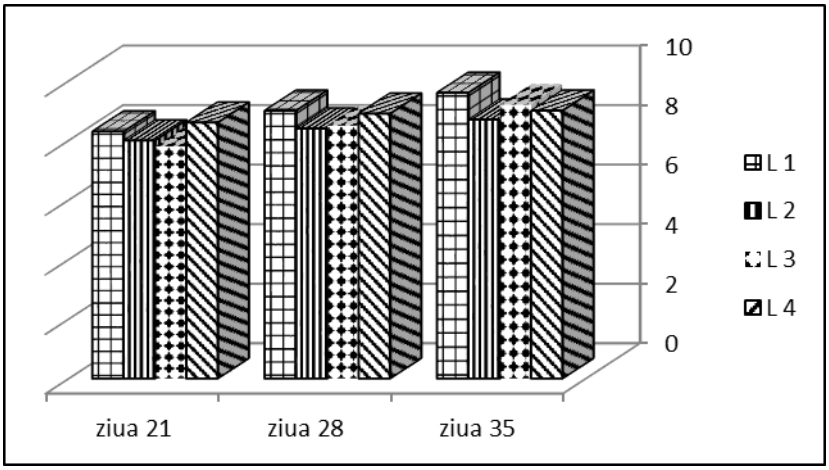


Fig. 4. *Haemoglobin variation depending on ambient temperature to Cobb broilers*

In Fig. 4 notes that haemoglobin has dropped significantly in the 35th day of the experiment, 9.4% for group 2 and 6.2% for group 4. In the case of group 3, the variation in haemoglobin value was the same as for hematocrit, registering a significant decrease of 6% at day 21 and 5.5% at day 28 and insignificant on the last day of the experiment.

Conclusions

Adaptation of the birds at higher environmental temperature has been achieved by reducing the metabolism of food intake and by cellular biochemical changes.

At broilers of group 3 the rectal temperature variation was not significant because daily exposure of two hours at ambient temperature of 38ºC during the three weeks was carrying experimental heat conditioning.

Significant decreases in hematocrit values and haemoglobin were recorded on day 35 of the experiment in groups 2 and 4, to which exposures to ambient temperatures of 38ºC were of shorter duration or lower frequency than those in group 3.

Acknowledgements

The authors would like to acknowledge the assistance of Dr. Elena Ghiţă, from National Research Development Institute for Animal Biology and Nutrition Baloteşti.

References

1. Cahaner, A.; Nader; D.; Gutman, M., 1993, "Effects of plumage reducing naked neck gene on the performance of fast growing broilers at normal and high ambient temperatures". *Poultry Science*, 72:767-775.
2. Cooper, M.A.; Washburn, K.W., 1998, "The relationships of body temperature to weight gain, feed consumption and feed utilisation in broilers under heat stress". *Poultry Science*, 77:237-242
3. Eberhart, D.E.; Washburn, K.W., 1993, "Variation in body temperature response of naked neck and normally feathered chickens to heat stress". *Poultry Science*, 72:1385-1390.
4. Etches, R.J.; John, T.M.; Verrinder Gibbins, A.M.V., 2008, "Behavioural, physiological, neuroendocrine and molecular responses to heat stress", *Poultry production in hot climates*, edited by N.J. Daghir, 2end ed., p. 48-80, books.google.com.
5. Yahay, S.; Hurwtt, S., 1996, "Induction of thermotolerance in male broiler chickens by temperature conditioning at an early age". *Poultry Science*, 75:402-406.

OVERVIEWS ABOUT PROSTATIS IN DOG

Paul GRIGORESCU, Aneta-Laura TUDOR
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: anetalauratudor@yahoo.com

Abstract

The study was conducted on a total of 10 dogs in the clinic of FMV-USH during June-December 2015 and was designed to highlights the importance of clinical and laboratory for identifying prostate disorders in over 5 years age dogs, and was discovered the occurrence of pathology of prostate ever since this age.

The lack of obvious clinical manifestations (or their confusion with intestinal pathology or disease that targets lower urinary tract) often leads to incomplete advice, which excludes prostate and ignores the onset of the disease.

It should be underlined that many methods of treatment should be applied promptly, before the occurrence of complications.

It has been shown that orchidectomy, especially in pedigreeless dogs is very important and must be done preventively, to avoid perineal hernias, prostatis, prostate tumours, etc.

Keywords: *dog, prostate disorders, orchidectomy*

Introduction

Many dogs examined in the clinic of FMV-USH have different clinical manifestations that may be confused with urinary or digestive disorders (ex. dysuria, constipation). The study was designed to highlight the prostate examination, especially after the age of 4-5 years in all patients with such symptoms.

It should also be noted the importance of completing the clinical examination with ultrasound, so that a routine diagnosis of prostate diseases should be done, regardless of their complexity.

Materials and methods

The case study was conducted on a group of 10 various breed males, between 5 to 10 years of age, large breeds (German Shepherd, Rottweiler), middle breeds (Poodle, Boxer) and small breeds (Bichon, Dachshund).

Male genitalia were properly functionally and anatomically examined: testicles and testicular bags; genital tracts (sperm); common urogenital duct as: urethra and penis; perianal glands; prostate.

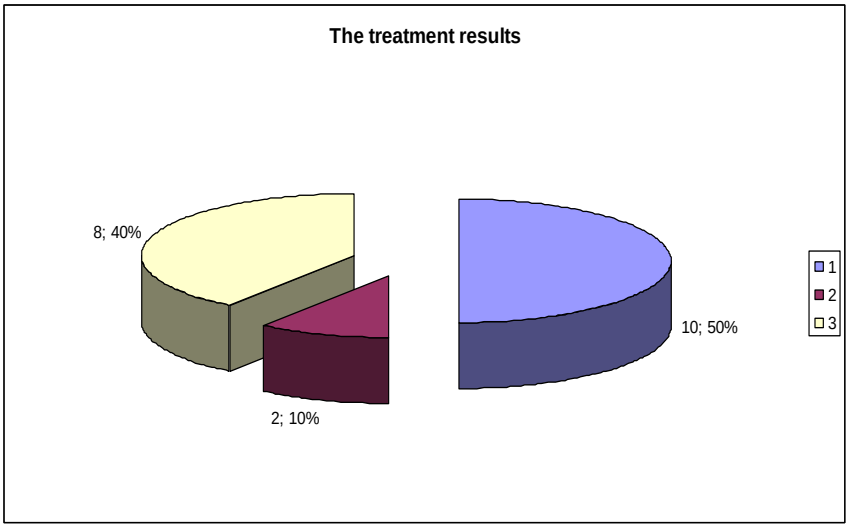
Anatomical examination of male genitalia was made through rectal examination of the prostate. There have been used catheterization, punctures, ultrasound examinations. It were noted: shape, size, symmetry, temperature, sensitivity of each segment, smegma appearance and the cremaster muscle reaction.

Ultrasonography was performed by dorsal position of subject in transabdominal approach, through suprapubic area. After hair clipping of ventral abdominal area, ultrasound was performed when the bladder was full, because it draws prostate forward to the cranial edge of the pelvic canal. Prostate has been scanned longitudinally and transversally for a better view. Also, a proper visualization was carried out helped by a catheter.

Results and discussions

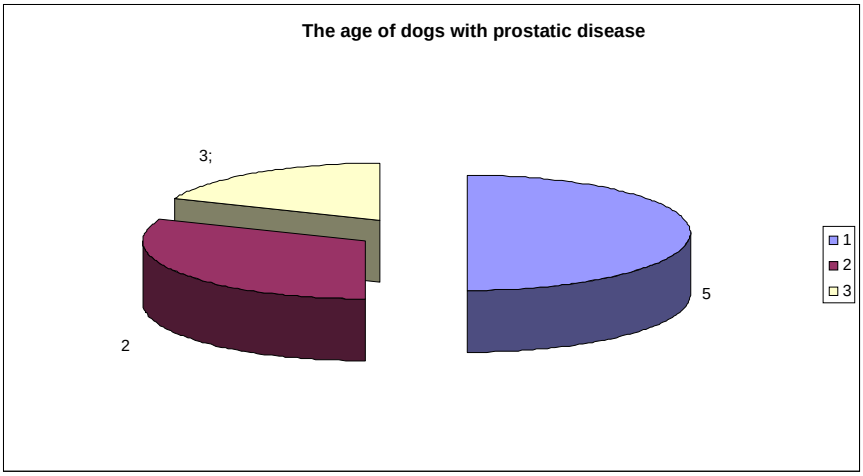
After the treatments were discovered the following results:

– 2 cases of prostatic diseases have improved and 8 cases were cured from a total of 10 cases.



Breeds distribution with prostate diseases was: 2 Poodles, 1 Bichon, 1 Dachshund, 3 German shepherd, 2 Rottweiler and 1 Boxer.

Prostate disorders occur in dogs aged between 5 and 10 years. Depending on the treatment there were: 5 surgical treatment cases, 3 medical treatment cases, 2 cases with both treatments.



Conclusions

The study was conducted in USH Clinic of Faculty of Veterinary Medicine on 10 dogs with prostate disorders. All cases were examined and diagnosed both clinically and using ultrasounds.

1. 8 cases were cured (80%) and only 2 cases (20%) have improved their condition after treatment. The most treated dogs were between 5 to 7 years of age (30%), followed by 6 and 10 years of age (20%).

1. An important component of the diagnostic method was the ultrasound exam that allowed setting a sharp diagnosis and, therefore, an appropriate therapeutic way. The most important was surgical method (50%), drug treatments – 30% and 20% both methods.

2. In most cases orchidectomy was salutary by lowering hormonal pressure on the prostate, anti-inflammatory action on reproductive glands annexes.

3. Prostate diseases in dogs are a relatively frequent pathological component, but gets pretty frequently clinical examination. Very often they are confused with kidney or urological disorders. Clinicians recommend expanding research in this regard, through a careful and complete clinical examination and complementary use of resources that can complete the diagnosis.

References

1. Adams, D.R., *Canine Anatomy*. 4. Ed., Iowa State University Press, Ames.

2. Boothe, H.W, "Penis, Prepuce, and Scrotum", *Textbook of Small Animal Surgery*, 3rd Edition, Volume 2, Saunders, p. 1531-1541.

3. Boothe, H.W, "Prostate", *Textbook of Small Animal Surgery*, 3rd Edition, Volume 2, Saunders, p.1542-1556.

4. Boothe, H.W, "Testes and epididymis", *Textbook of Small Animal Surgery,* 3rd Edition, Volume 2, Saunders, p. 1521-1530.

5. Budras, Klaus-Dieter; McCarthy, Patrick H.; Fricke, Wolfgang; Richter, Renate, *Anatomy of the Dog,* 5th revised edition, schlütersche, p. 68-69.

6. Farrow, Charles S.; "Kidney, Ureter, Bladder, Prostatic and Urethral Disease"*, Veterinary Diagnostic Imaging: The Dog and Cat,* Volume 1, Masby, p. 688-692.

7. Green, Ronald W.; Homco, Linda D., "Prostate gland", *Small Animal Ultrasound,* Lippincott Williams & Wilkins, p. 237-238.

8. Hoskins, J. D., *Veterinary Paediatrics Dogs and Cats from Birth to Six Months,* 3rd Edition, Saunders, p. 46.

9. Kutzler, Michelle A.; Yeager, Amy, "Prostatic Diseases", *Textbook of Veterinary Internal Medicine,* 6th Edition, Volume 1, Saunders, p. 1809-1817.

10. Papuc, Ionel, *Examenul şi semiologia aparatului genital mascul,* Editura Accent, p. 286-287.

11. Paştea, E.; Coţofan, V., *Anatomia comparată a animalelor domestic, v*olumul 1, Editura Didactiă şi Pedagogică, Bucureşti, 1985, p. 361-382.

12. Pineda, M.H., "Male Reproductive System", *Veterinary Endocrinology and Reproduction,* 1th Edition, McDonald's, Iowa State Press, p. 251-253.

13. Post, K., "Clinical Examination of the Reproductive system", *Veterinary Clinical Examination and Diagnosis,* Saunders, p. 661-678.

STUDIES CONCERNING THE SELECTIVE BREEDING METHODS TO HUNKARI PIGEONS

Monica PÂRVU, Ioana Cristina ANDRONIE, Andreea GHEBOSU
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: monica.parvu@gmail.com

Abstract

The aim was to determine the best method to selection a population of pigeons, to preserve the standard of Hunkari breed. The morphological characters were appreciated by method of points. They were analysed 10 regions of body, plumage, colour and station. The defects have decreased the total score. The families were formed by inbreeding, following the performance over 6 generations. At L1 group it was practiced incestuous inbreeding (2 generations) followed by moderate inbreeding (4 generations). At L2 group it was used the line inbreeding (remote inbreeding). A total of 429 descendants has been evaluated. The incestuous inbreeding during 2 generations followed by moderate inbreeding over 4 generations had the following effects: elimination of the genes that determine colour defects; stabilization of morphological characters that give the breed standard; increase the number of descendants categorized as "excellent" and "very good".

Keywords: *Hunkari pigeons, inbreeding*

Introduction

The Hunkari (Classic Oriental Frill) pigeons are an exhibition breed, which was created during the Ottoman Empire times (6; 7). From Izmir, the breed was transported in 1864 in to England. Hunkari pigeons were used as the basis for the formation Oriental Frill, which is divided into several variations in colour, Satinettes and Blondinettes being the most common (2).

The preservation of the breed is done by two methods: inbreeding and crossbreeding (8). Inbreeding gives the best results when based on a superbreeder. But inbreeding is always accompanied by a loss of vitality. The vitality is soon regained when crossing inbred birds. It is a very common practice to inbreed all the basic birds and then cross the products of this inbreeding. The inbreeding is done for fixing the hereditary material; the crossing brings the heterosis or gain of vitality and strength (5).

The effect of inbreeding on the population, referred to as inbreeding depression, is commonly recognized by lowered reproductive capacity and viability (3). Horn and Meleg (2000) reported inbreeding effects on production traits in different type of pigeons. These experiments demonstrated that auto-sexing utility pigeons were much more sensitive to inbreeding than racing homer pigeons (1).

Materials and methods

The aim was to determine the best method to selection a population of pigeons, to preserve the standard of Hunkari breed.

The families were formed by inbreeding, following the performance over 6 generations. It was practiced:

– L1 group: incestuous inbreeding (2 generations) followed by moderate inbreeding (4 generations);

– L2 group: line inbreeding (remote inbreeding).

The morphological characters were appreciated by method of points. There were analysed 10 regions of body (head, eye, crest, neck, frill, breast, back, wings, legs and tail), plumage, colour and station. The defects have decreased the total score. Finally, based on the total score, it was given the following rating:

- excellent, between 94-100 points;
- very good, between 86-93 points;
- good, between 78-85 points;
- suitable, between 70-77 points.

Initially, there were chosen ten families per group classified at "exceptional". A total of 429 descendants have been evaluated.

Results and discussions

In the L1 group, from three families, in the first generation 2 descendants with missing fingers, 1 with scissor beak and 1 dwarf young pigeon were obtained. These families were eliminated.

The literature shows that the preservation of excellent genetic material can be done only by using the incestuous inbreeding, sometimes during two generations (4).

The descendants were analysed phenotypically, the rating being shown in table 1.

Table 1

The rating of descendants

Group	Rating	Number of exemplars	Points awarded
L1	Excellent	332	94 – 98
	Very good	45	88 – 91
	Good	5	79 – 84
	Improperly	47	70 – 73
L2	Excellent	113	94 – 98
	Very good	72	88 – 91
	Good	48	79 – 84
	Improperly	25	70 – 73

To L1 group, it was observed that the rating “excellent” was given to 77.4% of descendants and “very good” to 10.5% (Fig. 1; Fig. 2).

To L2 group, the rating “excellent” was given to 43.8% of descendants and “very good” to 27.9%.

Fig. 1. *A pair appreciated ”excellent”*

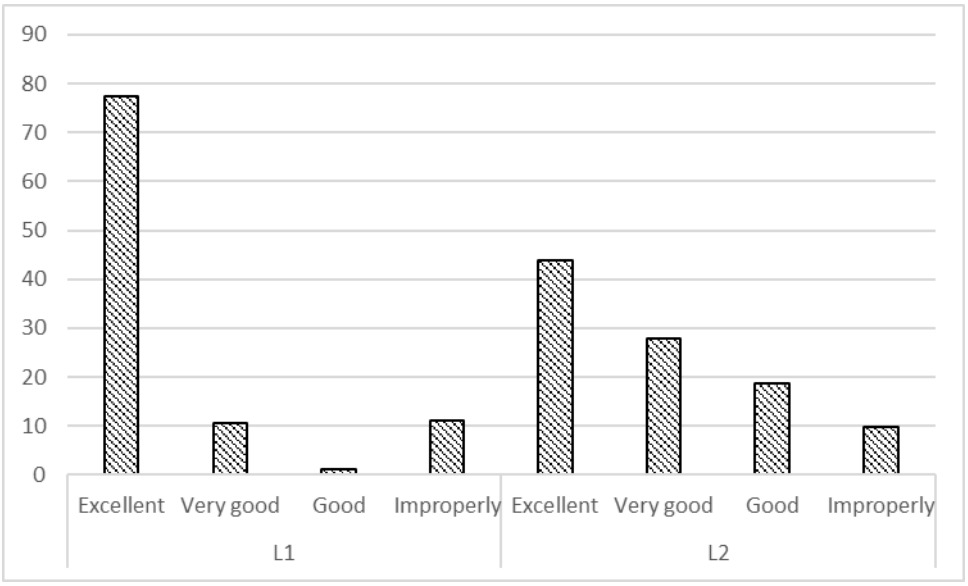


Fig. 2. *The percentage of rating*

To both groups, the fourth generation descendants appreciated as “good” have had defects of exterior and changes to the coloration of plumage, by disappearance of the laced model.

The pants of the legs were kept at 20%, 11% have had white wings, medium beak was seen at 4% and the crest at 3%.

The descendants appreciated as “improperly” have had serious defects to the colours of the feathers (Fig. 3). They were eliminated from the reproduction.

Fig. 3. *Descendant with defects to the colours of the feathers, appreciated as ”improperly”*

Conclusions

The incestuous inbreeding during 2 generations followed by moderate inbreeding over 4 generations had the following effects:

- elimination of the genes that determine colour defects;
- stabilization of morphological characters that give the breed standard;
- increase the number of descendants categorized as “excellent” and “very good”.

References

1. Horn, P. and Meleg, I., ”Inbreeding effects on production traits in pigeons”, *Arch. Geflügelk*. 2000, 64 (6), 273-277.

2. Levi, Wendell, *The Pigeon*. Sumter, S.C.: Levi Publishing Co, Inc. 1977.

3. Meleg, I.; Pakuts, G. and Reiczigel, J., ”Inbreeding effects on flying performance of racing pigeons”, *Arch.Geflügelk.*, 69 (1). S. 23– 26 , 2005
4. http://www.stevenvanbreemen.nl/?Voorpagina:My_View_on_inbreeding
5. http://www.wimmuller.com/anker.html
6. https://en.wikipedia.org/wiki/Old_Fashioned_Oriental_Frill
7. http://www.orientalfrill.com/eofc/index.htm

https://fermaenachevoiajori.wordpress.com/category/despre-porumbei-in-general

THE COMMON DISEASES IN GUINEA PIG GENITAL AREA (*CAVIA PORCELLUS*)

Aneta-Laura TUDOR, Paul GRIGORESCU
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: anetalauratudor@yahoo.com

Abstract

Guinea pigs (Cavia porcellus) have become, in recent years, pets common in veterinary clinics as patients.

They have relatively common genital disorders and various causes. Feeding both inappropriate and inadequate environmental conditions or ignorance of biology artificial species often lead to imbalances HPA ovarii repercussions important pathological and infertility.

Diseases have resulted in particular in various forms of metritis, serous or infected with pathogens, and ovaries accompanied by follicular or corpus luteum cyst.

The study was conducted on 20 female guinea pigs during July 2015-March 2016 period, both in the FMV-USH clinic, and in a private clinic in District 6, Bucharest. The aim was to underline the importance of the influence of environmental conditions and feeding on fertility in these species.

***Keywords*:** *Guinea pigs, genital affections, ovaritis*

Introduction

In recent years, Guinea pigs have become frequently encountered pets. Very few times breeders or owners are properly advised about the environmental conditions that must be observed to avoid some dangerous diseases, more or less serious.

Some of them concern the genital area and are manifested by: dystocia, ovarian cyst, toxic gestation, ovarian or uterine neoplasms, metrites.

The study was conducted on 20 female Guinea pigs in the FMV-USH clinic and in Tetravet clinic from District 6, Bucharest.

Materials and methods

Patients were represented by females aged between 5 months to 5 years.

The working methods were:

– clinical exams;

– laboratory tests:

• ultrasound;

• radiological examination;

• hematology – haematological examination for the harvesting was made from the cranial vena cava, from the femoral vein or jugular vein after a mild tranquilization of the patient.

• urinary examination – biochemistry and sediment needed for differential diagnosis of diseases in the field of reproductive diseases the upper and the lower urinary tract.

Results and discussions

The most common genital disorders were closely related to the microclimate and the quality of food; among the common causes have been incriminated: lack of female separation from male after the age of 4-6 months (female's age); this leads to early unwanted matings, and presence of dystocia before the proper body development appropriate to parturition (4 cases). We must emphasize that dystocia is relatively common after the age of 6 months as well due to the ossification of the ischio-public symphysis in this species and the impossibility of enlarging the diameters of the basin to allow a easier parturition.

As in the case of other mammals it is recommended the strict supervision of mating and the correlation of the body dimensions of the two partners.

Increasing photoperiod to more than 6-8 hours, as well as the feeding with phytoestrogens forage (flax seeds, soy beans, sprouted grains of oats, sunflower seeds, rye and wheat derivatives).

These can form the basis of some disorders of the hypothalamic-pituitary-ovarian axis followed by the appearance of ovarian cysts. The ovarian cysts are relatively frequent; in our study were encounter on 12 females.

– 3 cases in females up to 1 year;
– 6 cases in females between 1-3 years;
– 3 cases in females between 3-5 years (Fig. 1).

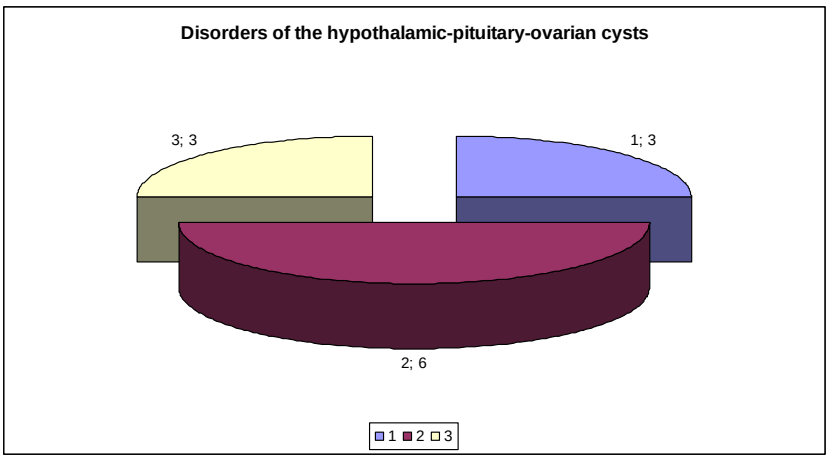


Fig. 1. *Disorders of the hypothalamic-pituitary-ovarian axis*

In 9 of 14 cases the cysts were present on both ovaries.
Clinical signs have included:

- abdominal distension (6 cases);
- loss of appetite, lethargy (8 cases);
- alopecia in the flank region, bilateral (2 cases) (Fig. 2).

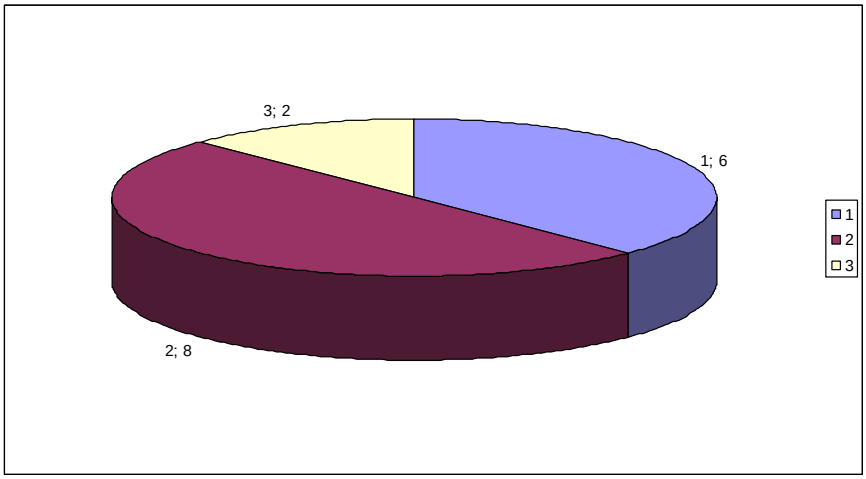


Fig. 2. *Disorders of the cysts on both ovaries*

Ultrasound showed cysts of varying sizes (up to 1-2 cm) hypoechogenyc, single or multiple. The intervention was performed in all 12 cases; on two of them ultrasonic guided puncture and aspiration of cysts was tried, but the subsequent relapse imposed radical treatment. Another relatively common condition is serous metritis; during the study period 2 cases where vaginal discharge accompanied by changes in the general condition of the females have been reported. Microbiological samples were taken, and the results showed in both cases, superinfection with *Mycoplasma spp*.

Also, the owners have reported in both cases that repeated matings were previously conducted that have not resulted in gestation (infertility).

The treatment targeted the antibiotic therapy for 2 weeks with antibiotics indicated by antibiogram (enrofloxacin 10 mg/kg every 12 hours, after eating).

Other conditions in the reproductive sphere involve both ovarian cysts as aetiology and their determinant factors, which are ovarian or uterine neoplasms.

Relatively rare (2 cases out of 20 from the study), it involves the same routine in diagnosis and treatment, as well as in the case of other mammals, in one case histologically was confirmed the caleomiom and the second one the leiomyosarcoma.

Tumours were discovered as a surgical surprise, the sizes being up to 1 cm. Ultrasound diagnosis in both cases was inconclusive, and therefore the laparotomy diagnostic followed by the total ovariohysterectomy was performed in both cases.

Conclusions

1. Clinical examination should be accompanied by laboratory tests because, many times, the clinical signs of the reproductive sphere are inapparent or common with other diseases.
2. Attention on the genital apparatus is important as well at a very young age, starting with 5-6 months.
3. The focus should be on the root causes that we can control and that may influence the neuro-genitals endocrine balance (e.g. improvement of the microclimate conditions and control of the photoperiod).
4. The ultrasound examination should be a routine in the diagnosis of the diseases for the genital area, being a real help.
5. The removal from the alimentation of all the predisposing factors, of the intensively processed food with many flavour additives or phytoestrogens is very important.

References

1. Bishop, C.R., *Reproductive medicine of rabbits and rodents*, Philadelphia, 2002.
2. Saunders, W.B., *Manual of exotic pet's*, BSAVA, 2010.
3. Verstraete, F.J.M., *Advances in diagnosis and treatment of small exotic mammals*, 2003.

VENT PROLAPSE IN MELOPSITTACUS UNDULATUS

Aneta-Laura TUDOR, Paul GRIGORESCU
Spiru Haret University,
Faculty of Veterinary Medicine,
256 Basarabia Ave., 30352, Bucharest,
e-mail: anetalauratudor@yahoo.com

Abstract

Vent prolapse in female budgerigar is a relatively common condition in practice. Although relatively easy to diagnosis and treat, very often is approached incorrect therapeutically in that the causal factors, leading to numerous complications or relapses are ignored.

The study was conducted on a total of 30 cases, male and female, from October 2015 since February 2016, both in the FMV-USH clinical, and in a private clinic from Sector 6, Bucharest.

Our focus was on highlighting some very important issues related to the aetiology of the species, a fact that contributes to the aetiology of the disease, and of the most common causes of food or natural infections.

Treatment aimed both the relatively classical methods of treating prolapse, and removing all the causes that led to the onset (correct nutrition, treatment of associated infections, improve habitat conditions etc).

Keywords: *budgerigar, cloacal affections, inflammatory*

Introduction

Vent prolapse in budgerigars is a quite common condition; most of the times it is only symptomatic treatment, fact which determines numerous complications and relapses.

The present study was carried out on 30 cases, in the clinic of FMV-USH and Tetravet Clinic, a specialised veterinary clinic from District 6, Bucharest.

Total or subtotal prolapses were studied and emphasis was placed on underlying the etiological factors for their reparation.

Materials and methods

The 30 cases were 18 females and 12 males, and in terms of the degree of prolapsed, 18 cases were with total prolapse and 12 cases were with subtotal prolapse.

Investigative methods were mainly clinical – in all cases, complemented by ultrasound in two cases and blood counts in 3 cases.

Results and discussions

A certain predominance of the vent prolapse in females was observed – the aetiology involves also the impossibility of clocking because of the size or the abnormal forms of the egg (e.g. with rough mineral deposits).

The main causes of prolapse were:

– poorly developed abdominal muscles (2 cases);

– intercurrent diseases or malnutrition that has determined the decrease of the "abdominal press" force – an important factor in clocking – determines sustained extensive, repeated efforts, resulting in the end in prolapse;

– overproduction of eggs due to various factors such as:

1) unbalanced diet (high protein);

2) excess of synthesis vitamins;

3) unsuitable microclimate (e.g. increased photoperiod over the physiological limit);

4) the presence of some stress factors (changing shelter, new and persistent noises, lack of a partner, the presence in the home of a new family member, changing the place of the cage, keeping the bird in captivity way too many hours a day).

Prolapse due to overproduction of eggs was noted in 14 of the 30 studied cases.

Clocking some eggs with shapes and sizes that represent an obstacle in the physiological clocking – caused by metabolic imbalances, overeating, excessive use of the mineral blocks, high protein diet (observed in 3 of the studied cases).

– Other causes of prolapse: 5 females and 6 males had enteritis with various aetiologies. The most common were *Pseudomonas aeruginosa*, *E. coli*., *Yersinia spp*. and *Campylobacter spp*. 3 cases – *Yersinia enterocolitica*, 3 cases – *E. coli*, 1 case – *Pseudomonas fluorescens*, 2 cases – *Pseudomonas aeruginosa*, 2 cases – *Campylobacter spp.* (Fig.1).

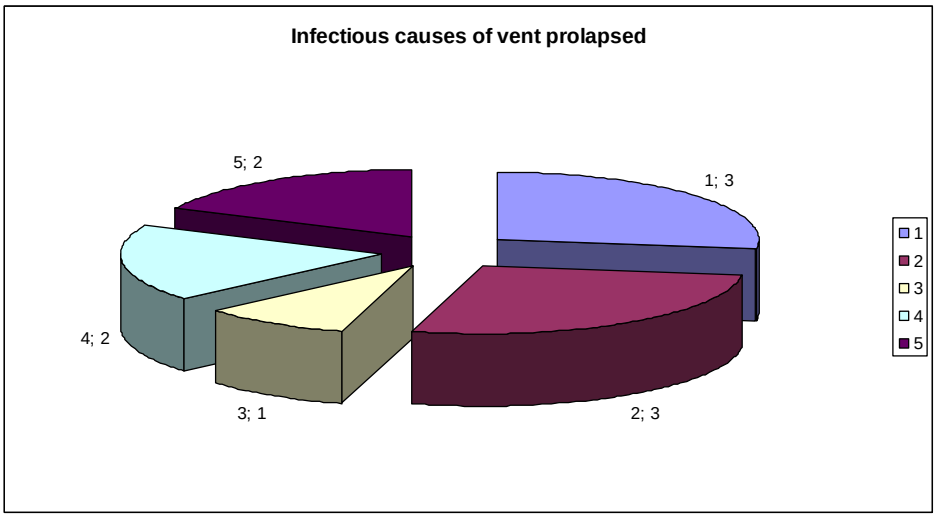


Fig. 1. *Infectious causes of vent prolapse*

Causes of vent prolapsed:
1) total number of cases – 30
2) weak abdominal musculature – 2 cases
3) overproduction of eggs – 14 cases
4) oversized eggs clocking – 3 cases
5) enteritis – 11 cases (Fig. 2).

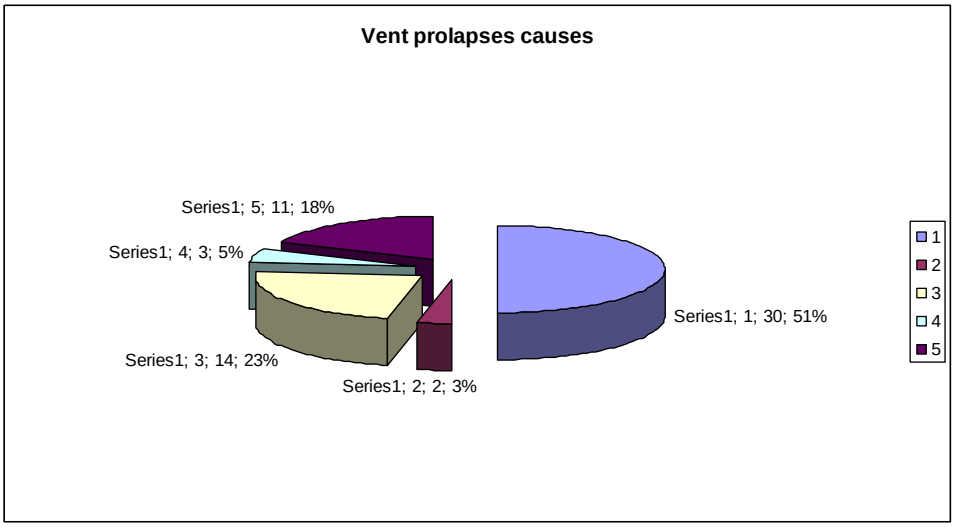


Fig. 2. *Vent prolapse causes*

The treatment has targeted the symptomatic part (prolapse amendment), the general support by hydration and appropriate supplements, removal of the secondary causes – predisposing factors.

Prolapse remediation was done in all cases it using an ointment (containing neutral vaseline, anti-inflammatory and broad-spectrum antibiotics), a blunt-tipped probes or any other similar instrument. We must stress that in cases of repeated relapse after removing the primary cause, cloaco-pexy is done after a prior anaesthesia, and the last coast pexy is realized using a 3/0 or 4/0 resorbable monofilament thread.

Laboratory samples are very important in the case of the blood count, where 0.3 ml of blood will be taken from the brachial vein after bird's comfort immobilization, as well as in case of the microbiological samples taken currently from the patients with enteritis.

Treatment was performed after microbiological examinations rigorously accompanied by antimicrobial susceptibility; although the faeces may have consistency and similar colour (may be more or less watery, greenish, yellowish or blackish), the results of microbiological examination were different also from the pathogen susceptibility results.

Conclusions

1. Vent prolapse is commonly met in equal measure in both females and males starting from the age of 5-6 months.
2. Microclimate conditions must be respected so that they be similar to those of the natural habitat of the species
3. Stress factor must be fixed or removed.
4. Nutrition is very important, overeating or excessive use of proteins or minerals being closely related to the cloacal prolapse appearance.
5. Remediation of enteritis should only be made after conducting accurate microbiological examinations, with corresponding antibiograms.
4. Chaotic or incorrect use of the therapeutic remedies prones to the aggravation, complication, sluggishness and relapse of this disease.

References

1. ***, *Manual of exotic pet's,* BSAVA, 2010.
2. Verstraete, F.J.M., *Advances in diagnosis and treatment of small exotic mammals*, 2003.

Redactor: Mihaela SAVU
Tehnoredactor: Georgiana Laura GÎRJOI
Coperta: Magdalena ILIE

Coli tipar: 2,75
Format: 16/70x100

Editura Fundaţiei *România de Mâine*
Str. Fabricii nr. 46G, Bucureşti, Sector 6
Tel./Fax: 021/444.20.91; www.spiruharet.ro
e-mail: editurafrm@spiruharet.ro