Review

Surgical Treatment of Canine Femoral Fractures – a Review.

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**ABSTRACT**
Femoral fractures in dogs and cats account for 20-25% of all fractures for which surgical treatment is a method of choice. Surgical treatment is based upon biological principle of open anatomic reduction and osteosynthesis. Arbeitsgemeinschaft für Osteosynthesefragen (AO) classification of fractures has a widespread use in general. Present study discusses different methods of osteosynthesis and healing process based on special cases managed in a certain small animal clinic in Hollabrunn, Austria, in 2016. The level of femoral fracture and the chosen method of osteosynthesis are shown respectively. According to available literature and author’s personal observations during externship period, the best results have been achieved using minimally invasive surgery. The surgical method choice depends on type, level and complexity of fracture, surgical skills and equipment of the team providing care respectively.

Key words: Dog, Femur, Fracture, Osteosynthesis.

Effects of Curcumin Supplementation on Viability and Antioxidant Capacity of Buffalo Granulosa Cells under In Vitro Culture Conditions.

The current study was conducted to investigate the possible protective effect of curcumin supplementation on buffalo granulosa cells (GCs) under in vitro culture condition. Buffalo ovaries were collected from local abattoir in physiological saline solution and transported directly to laboratory. Follicular fluid containing GCs and cumulus-oocyte-complexes were aspirated from antral follicles with diameter 2-8 mm. The collected GCs were seeded (Approximately 375,000 viable cells) in an 8-well culture plate containing tissue culture medium-199 (TCM-199) and kept at 37 °C in a humidified atmosphere of 5% CO₂. The curcumin was supplemented to TCM media at levels of 1, 2.5, 5 and 10 µM for 24 and 48 h at 37 °C or kept without treatment as control group. The viability of cells was determined using the trypan blue test. Intracellular reactive oxygen species (ROS) level was assessed by measuring the fluorescent intensity of 6-carboxy-2′,7′-dichlorodihydro fluorescein diacetate (H₂DCFDA). In addition, mitochondrial activity of GCs was determined. The results of the present study indicated that the viability of GCs under culture conditions was significantly decreased in groups treated with 1, 2.5, 5 and 10 µM curcumin (86.0%, 86.26%, 83.0% and 74.0%, respectively) compared to control group (93.60 %). The two groups of granulosa cells cultured with 2.5 and 5 µM curcumin recorded greater level of mitochondrial activity than the groups cultured with 1 µM and 10 µM curcumin. Moreover, there was a significant increase in ROS level in group cultured with 10 µM curcumin, compared to control and other experimental groups. The enzyme activity of catalase (CAT), superoxide dismutase (SOD), glutathione (GSH) and 1, 1-diphenyl-2-picrylhydrazyl (DPPH) was increased after treating...
cultured granulosa cells with 5 µM of curcumin. However, the enzymatic activity of CAT, SOD, GSH and DPPH was declined significantly 48 h post-curcumin treatment. In conclusion, supplementation of curcumin at low concentration (2.5 µM) for 24 h to cultured GCs improved intracellular metabolic activity and antioxidant protective system, whereas it could not sustain this action for 48 h. Moreover, supplementation of curcumin at high concentration and for long duration may negatively affect viability of GCs under culture condition via induction of oxidative stress.

Key words: Antioxidant, Buffalo, Granulosa cells, Oxidative stress, Viability.
ABSTRACT

This research aimed to study the efficacy of two different ivermectin-based drugs against ectoparasites of chickens. In total 1200 Highsex brown chickens aged 1-1.5 years were examined to determine the prevalence of ectoparasites among chickens. The diagnosis of ectoparasites in chickens was established using clinical and entomological methods. For studying drug efficacy, 20 chickens were selected and divided into two groups (experimental and control) of 10 birds each according to the principle of analogs. A prepared ivermectin-based drug consisting of active substance ivermectin and the auxiliary substances including jojoba Resplanta, diethylene glycol monoethyl ether, Tween-80, benzyl alcohol, and purified water, was administered to the experimental group at a dose of 0.4 ml/L of drinking water (400 μg ivermectin per 1 kg of body weight) twice with a 24-hour interval. The treatment was repeated after 14 days. The control group was administered another drug based on ivermectin in the same dose and manner as the drug given in the experimental group. The efficacy of the drugs was determined by counting the number of ectoparasites per chicken before and after treatment. The clinical condition of the birds was monitored from day 1 to day 28 of the experiment. To evaluate the physiological state of chickens, blood and biochemical tests were performed on day 28 of the experiment. The results revealed that the prevalence of infection with Menacanthus stramineus, Menopon gallinae, and Dermanyssus gallinae in chickens was 34.5%, 21.5%, and 12%, respectively. The number of parasites/chicken after treatment between the experimental and the control group was significantly different. The efficacy of the drugs against ectoparasites in the experimental and control group was 95.6-99.0% and 85.1-91.1%, respectively. The blood tests showed that hematological and biochemical parameters were within physiological norms for both groups. Also, a pharmacokinetic study was performed on 18 ISA cross, 40-day-old chickens administered orally with the test drug at the same dose. The results revealed that ivermectin reached maximum concentration at 30-60 minutes after administration to the bird. After 1 hour, the concentration of the active substance of the drug in the blood serum of chickens decreased sharply and reached the limit of quantification by 12-24 hours. In conclusion, this drug can be recommended for use in poultry as an effective and safe drug for the treatment of arachnoentomosis in birds.

Key words: Chickens, Ectoparasites, Ivermectin.
Sensitivity of Lateral Flow technique for Evaluation of Inactivated Rift Valley Fever Virus Vaccine in Comparison with Serum Neutralization Test.

Abousenna MS, Sayed RH, Darwish DM and Saad MA.


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ABSTRACT
Rift Valley Fever (RVF) is a zoonotic mosquito-borne bunyaviral disease associated with high abortion rate, neonatal death, fetal malformations in ruminants, and mild to severe disease in human. The vaccination has significantly reduced the abortion of ewes and mortality of newborn lambs during an outbreak, and induced immunity in cattle. The evaluation of inactivated RVF vaccine required in vivo and in vitro techniques. The present research aimed to evaluate the sensitivity of the Lateral Flow Device (LFD) in comparison with Serum Neutralization Test (SNT) by reference sera to determine the humoral immune response of the sheep vaccinated with an inactivated RVF vaccine. Three batches of inactivated RVF vaccine were inoculated in three sheep groups. Then samples of their sera were collected weekly, and tested by SNT and LFD. It was found that the sensitivity of LFD at a serum dilution of 1:128 was 95%, while SNT carried out at the fourth week after the vaccination showed that antibody titers was 32, 64 and 32. On the other hand, LFD had positive results at dilutions of 1:32, 1:128 and 1:64 for the vaccine batches 1, 2 and 3 respectively. These findings suggest the possibility of using LFD for detection of the immune response of vaccinated sheep to the inactivated Rift Valley Fever Virus vaccine, and it could be improved to be more quantitative in future.

Key words: Lateral flow device, Rift valley fever virus, RVFV inactivated vaccine, Vaccine evaluation

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ABSTRACT

The tapeworm *Spirometra erinaceieuropaei* is the most frequently species which found in wild frog and causing a serious parasitic zoonosis known as sparganosis. This study aimed to provide molecular evidences of spargana collected from wild frogs which used as food and contribute to provide important implication for prevention and control of sparganosis. A total of 185 Asian wild frog (*Rana rugulosa*) samples were selected from food markets in Banyuwangi City, Indonesia. Molecular identification based on spargana that were collected and coding gene of mitochondrial cytochrome c oxidase 1 (*cox1*) using Polymerase Chain Reaction (PCR) method. Spargana were found in 9.1% (17/185) of the frogs and PCR analysis results identified all specimens belonging to the species *S. erinaceieuropaei*, therefore indicated that *S. erinaceieuropaei* is the major causative agent of sparganosis from frogs which sold as food in markets. These findings can be useful to the molecular diagnosis and control of *Spirometra* infections in humans and animals.

**Key words:** Asian wild frog, *Rana rugulosa*, Sparganosis, *Spirometra erinaceieuropaei.*
Entamoeba muris

ABSTRACT
The mean aspartate aminotransferase, urea, and creatinine levels of treated goats 28 days post-treatment. The administration of encapsulated bromelain was not associated with any clinical sign and mortality. The reduction in fecal egg count in G1 and G2 at 21 days post-treatment was 9.5% and 22.6%, respectively. The encapsulated bromelain chitosan-encapsulated bromelain (90 mg/kg); G2, positive control (albendazole 7.5 mg/kg); G3, negative control; G4, untreated control. The animals were orally treated with the drugs in a single dose. The hematological and serum biochemical parameters were determined using standard methods.

Key words: anthelmintic efficacy, proteolytic activity, and toxicity of bromelain encapsulated in chitosan

References

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African four-toed hedgehog, Immunoreactivities, Spermatogenic cells, Sertoli cells, Leydig cells, peritubular myoid cells, testicular capsule, vascular endothelium.

Keywords: brown or grey spine covering the dorsum of the body with a band of whitish fur running across their forehead, little is known about the reproductive biology of this animal. The present study aimed to evaluating the validity of immunohistochemistry in the differential labelling of their different cellular components of the testis of the African four-toed hedgehog. Paraffin-embedded testicular sections were stained by conventional histological technique using ten male African four-toed hedgehog (Atelerix albiventris) as experimental animal. It is concluded that α-SMA and S-100 proteins have active roles in the cytoskeletal structure of testis and physiology of the African four-toed hedgehog while S-100 protein plays against alpha smooth muscle actin (α-SMA) and S-100 proteins in the testis of the African four-toed hedgehog. 

Research Paper


ABSTRACT

Toxicity assessment of the new antiparasitic multicomponent drug tablets for cats and dogs was carried out. The parameters of acute oral toxicity were determined in white mice and white rats and subchronic toxicity was observed after repeated oral administration of the drug to the 60 white mice were established which were equal to the following: LD₅₀ = 14800 mg/kg (Karber's method), 13800 mg/kg (Miller and Tatener's method); to the white rats LD₅₀ = 846 mg/kg and 338 mg/kg were threshold in a subchronic experiment on the rats. Moreover, it was found that the drug did not possess embryotoxic and teratogenic properties in pregnant female rats. Experimental results have confirmed the low toxicity of a new antiparasitic multicomponent drug.

Key words: Toxicity Assessment, Antiparasitic Drug, Embryotoxicity, Mice, Rats, Subchronic Toxicity.


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concentrations for improving the quality of tilapia fish fillets until 10 days of refrigerated storage. Results showed that 2% chitosan and 2% chitosan nanoparticle solutions were the optimal nanochitosan (1 and 2%) were applied for the casing of tilapia fish slices thereafter stored at 4°C for 15 days. Uncoated (control) and coated fish fillets pieces were examined intermittently.

Bacteriological parameters (Total bacterial count, Proteolytic bacterial count, Lipolytic bacterial count), quality parameters (pH, total volatile basic nitrogen (TVB-N), and thiobarbituric acid reactive substances, TBARS) and sensory features were measured during the storage period. Therefore, 2% chitosan nanoparticles as a natural bacterial count, and Staphylococcus aureus count), quality parameters (pH, total volatile basic nitrogen (TVB-N), and thiobarbituric acid reactive substances, TBARS) and sensory features were measured during the storage period. Therefore, 2% chitosan nanoparticles as a natural preservative has a probability to improve the quality and integrity of fish products.


ABSTRACT

Blood serum, Cats, Dogs, Moxidectin, Pharmacokinetics

Moxidectin was determined in the blood serum of animals after 12 hours at maximum concentration in the blood serum of dogs and cats after 4-10 days. After treatment, moxidectin remained for 28 days after topical application (spot-on). Moxidectin was detected in the blood serum of animals at the end of the experiment (after 30 days) which indicates its therapeutic effect for at least one month after the application of the drug.

The pharmacokinetic characteristics of moxidectin in the blood serum of dogs and cats after a single cutaneous (spot-on) application of drug for veterinary use "Inspector Mini" to prevent and treat arachnoses, entomoses and intestinal nematodes in kittens and puppies as well as in small breed dogs and cats were investigated. Twelve outbred dogs and cats of different ages and weights were involved in present study. All the animals were weighed to determine the exact dosage of the drug. The determination of moxidectin in blood serum was carried out by high performance liquid chromatography with pre-column modification of N-methylimidazole and trifluoroacetic anhydride followed by fluorescence detection. According to the results of the study, it was found that moxidectin was well absorbed into the systemic circulation and reached significant concentrations of moxidectin in the blood serum of animals after 12 hours at concentration of 2 ng/ml.
Developmental Competence of Buffalo Oocytes Cultured Under Different Oxygen Tensions after Selection with Brilliant Cresyl Blue.

Abd-El Rahman Ahmed D, Ghanem N, Dessouki ShM, Faheem MS, Gad AY and Barkawi AH.


ABSTRACT

The aim of this investigation was to follow up in vitro preimplantation development of buffalo cumulus-oocyte complexes (COCs) after BCB test and followed by in vitro maturation under two different levels of oxygen tension. Cumulus-oocyte complexes (n=1045) were selected with BCB staining (oocytes with any degree of blue color in cytoplasm was defined as BCB+, oocytes without any degree of blue color in cytoplasm was defined as BCB-) in addition to a third control group. The previous experimental groups (BCB+, BCB-, control) were matured in vitro under low (5%) and high oxygen tension (20%), followed by in vitro fertilization and in vitro culture of presumptive zygotes. There were no differences (P ≤ 0.05) in cleavage, morula and transferable embryos rates among BCB+, BCB- and control group. However, blastocyst rate was greater significantly in control group (14.4 ± 2.0) than BCB- COCs (8.4 ± 1.9). According to the oxygen tension effect, the rate of morula and transferable embryos was increased (P ≤ 0.05) in buffalo COCs developed under low oxygen tension (11.6 ± 1.4 and 23.8 ± 1.9) compared to high oxygen tension group (7.4 ± 1.4 and 17.9 ± 2.1). In addition, cleavage, morula, blastocyst and transferable embryos rates were greater in BCB+ under low (43.6 ± 3.9, 14.9 ± 2.5, 14.1 ± 2.9 and 28.4 ± 3.6) than high oxygen tension group (33.5 ± 3.9, 7.1 ± 2.5, 11.6 ± 2.9 and 18.8 ± 3.6) which may reflect enhanced biological processes controlling early development. Moreover, blastocyst rate was significantly higher in control group cultured under high (12.0 ± 2.9) and low (16.9 ± 2.8) oxygen level than their counterparts of BCB- group (9.3 ± 2.9 and 7.6 ± 2.6, respectively). In conclusion, there was no differences in embryo development between BCB+ and BCB-, COCs; therefore, oocyte selection based on BCB staining is not an effective tool to select developmental competent buffalo COCs. Buffalo morula and transferable embryos prefer low oxygen tension for early development, which should be applied during in vitro embryo production of this species.

Keywords: Brilliant cresyl-blue staining, Cumulus-oocyte complex, Morula, Preimplantation.