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Use of Cefquinome on treatment of diarrhea in calves

A Thesis Presented By

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List of Abbreviation

3GCs	Third generation cephalosporin
4GCs	Fourth generation cephalosporin
ALB	Albumin
ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
AUC	Area under the plasma concentration- time curve
BVDV	Bovine viral diarrhea virus
BW	Body weight
C MAX	Maximum concentration
CFQ	Cefquinome
CSF	Cerebrospinal fluid
CR-S	Creatinine
E.coli	Escherichia coli
ED50	Effective dose 50
EDTA	Ethylene diamine tetra acetate
IM	Intramuscular injection
IV	Intravenous injection
MCH	Mean corpuscular hemoglobin
MCHC	Mean corpuscular hemoglobin concentration
MCV	Mean corpuscular volume
mg/kg	Milligram per kilogram
MIC	Minimum inhibitory concentration
MRT	Mean residence time
PBps	Penicillin binding proteins
PCV	Packed cell volume
S.E	Standard error
SC	Subcutaneous injection
TCA	Tri chloroacetic acid
TEC	Total erythrocytic count
TLC	Total leucocytic count
TP	Total protein

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Summary

This work was planned to diagnose and differentiate different causes of scour in calves and also to evaluate some pharmacological effects of cefquinome on blood picture, liver and kidney functions and body weight in calves.

Our study conducted on 150 diarrheic calves at Dakahlia and Damietta Governorate (3-20 days old) to diagnose the main prevalent causative microorganism for calf scour. The more prevalent microorganisms are cryptosporidium, rota virus, corona virus and E. coli as 87 diarrheic calves because of cryptosporidium (58%), 28 diarrheic calves because of rota virus (18.6%), 25 diarrheic calves because of corona virus (16.6%) and 10 diarrheic calves because of E.coli (6.6%).

Ten Holstein calves (3-15 days old) infected by E. coli in a special dairy farm at Damietta Governorate were injected intramuscularly in the thigh muscle by cefquinome and the dose was (2mg/ kg body weight) for 3 successive days and other ten Holstein healthy calves were kept as control group.

Two blood samples (the first sample for hematological studies and the second sample for serological studies) were collected from each experimental animal at zero day, 3^{rd}, 7^{th} and 14^{th} day.

1-Blood samples were collected on Wassermann tube containing EDTA and collected from jugular vein of all calves for hematological parameters studies (erythrocytic count, leukocytic count, Hb, PCV, MCV, MCH, MCHC and thrombocyte count.)

2- The second blood samples were collected in Wassermann tube without anticoagulant from jugular veins of all calves and allowed to clot

at room temperature .the serum was separated by centrifugation the sera were collected in Eppindorff tubes and kept frozen at -20˚ c for biochemical studies (total proteins, albumin, ALT, AST, ALT, Urea and creatinine).

The present study revealed a significant decrease in total erythrocytic count, hemoglobin content and PCV in cefquinome treated group at zero, 3rd, 7th and 14th days post treatment compared to the control group.

The results showed a significant decrease in mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration in cefquinome treated group at zero, 3rd, 7th and 14th days post treatment compared to the control group.

The present data mirrored a significant increase in total leukocytic count in cefquinome treated group at zero, 3rd, 7th and 14th days post treatment compared to the control group.

The recorded results showed a significant decrease in neutrophil % in cefquinome treated groups at zero and 14th days post treatment compared to the control group.

These data showed a significant increase in monocyte percent of cefquinome treated group at 7th and 14th days post treatment compared to the control group.

Our work reflected a significant decrease in thrombocyte percent of cefquinome treated group at 3rd day post treatment compared to the control group.

Our data detected a sgnificant decrease in total protein in cefquinome treated group at 14th day post treatment compared to the control group. Also the work detecred a significant decrease in albumin in

cefquinome treated group at 14th day post treatment compared to the control group.While significant increase in globulin was detected in cefquinome treated group at zero and 3rd days post treatment compared to the control group.

Moreover, the results showed a significant increase in aspartate transaminase (AST) and alkaline phosphatase (ALP) levels in cefquinome treated group at zero, 3rd, 7th and 14th days post treatment compared to control group.

Not only that but also there was a significant increase in urea in cefquinome treated group at zero, 7th and 14th days post treatment compared to the control group. Also the work detected a significant increase in creatinine in cefquinome treated group at zero, 3rd, 7th and 14th days post treatment compared to the control group.