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Use of Cefquinome on treatment of diarrhea in calves

A Thesis Presented By

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List of Contents

Item number	Item	Page
1.	List of Abbreviation	I
2.	List of Tables	II
3.	List of Figures	IV
4.	Introduction	1
5.	Review of Literature	4
6.	Materials and Methods	37
7.	Results	57
8.	Discussion	110
9.	Summary	117
10.	Conclusion	120
11.	References	121
12.	Arabic Summary	1

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

List of Tables

Table No.	Title	Page
1.	Recommended Treatment regimen of cefquinome	32
2.	Prevalence of different causes of calve scour at Dakahlia and Damietta Governorates.	57
3.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on total erythrocytic count in calves.	60
4.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on hemoglobin in calves.	62
5.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on packed cell volume in calves.	64
6.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean corpuscular volume in calves.	67
7.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean Corpuscular Hemoglobin in calves.	69
8.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean Corpuscular Hemoglobin concentration in calves.	71
9.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on total Leucocytic count in calves.	74
10.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Neutrophil % in calves.	76
11.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Lymphocyte % in calves.	78
12.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Monocyte % in calves.	80
13.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Eosinophil % in calves.	82
14.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Basophil % in calves.	84
15.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Platelets count in calves.	86

16.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Total protein in calves.	89
17.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Albumin in calves.	91
18.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Globulin in calves.	93
19.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Alanine Transaminase in calves.	96
20.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Aspartate Transaminase in calves.	98
21.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Alkaline Phosphatase in calves.	100
22.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Urea in calves.	103
23.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Creatinine in calves.	105
24.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Body Weight in calves.	108

List of Figures

Figure No.	Figure name	Page
1.	Showing chemical structure of Cefquinome	37
2.	Showing diarrheic calf No1, infected with <i>E.coli</i> , suffering from polyarthritis in knee and hock joints.	39
3.	Showing neonatal calf suffering from polyarthritis in knee joint.	39
4.	Showing diarrheic calf No 2, showing signs of diarrhea and straining.	40
5.	Showing diarrheic calf No 3, suffering from dehydration and straining signs.	40
6.	Showing diarrheic calves No 4 and 5, in the second day of treatment with cefquinome, they began suckling after refusing suckling before treatment.	41
7.	Showing diarrheic calf has polyarthritis in knee joint.	41
8.	Showing the method of rapid kits	48
9.	Showing Mindary BC-2800	49
10.	Prevalence of different causes of calve scour at Dakahlia and Damietta Governorates.	58
11.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on total erythrocytic count in calves.	61
12.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on hemoglobin in calves.	63
13.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on packed cell volume in calves.	65
14.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean corpuscular volume in calves.	68
15.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean Corpuscular Hemoglobin in calves.	70
16.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Mean Corpuscular Hemoglobin concentration in calves.	72
17.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on total Leucocytic count in calves.	75

18.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Neutrophil % in calves.	77
19.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Lymphocyte % in calves.	79
20.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Monocyte % in calves.	81
21.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Eosinophil % in calves.	83
22.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Basophil % in calves.	85
23.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Platelets count in calves.	87
24.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Total protein in calves.	90
25.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Albumin in calves.	92
26.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Globulin in calves.	94
27.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Alanine Transaminase in calves.	97
28.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Aspartate Transaminase in calves.	99
29.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Alkaline Phosphatase in calves.	101
30.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Urea in calves.	104
31.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Creatinine in calves.	106
32.	The effect of intramuscular injection of cefquinome (2mg/kg body weight) for 3 successive days on Body Weight in calves.	109

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, 3rd, 7th and 14th 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 Eppendorff 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 significant decrease in total protein in cefquinome treated group at 14th day post treatment compared to the control group. Also the work detected 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.