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Comparative Studies On Supportive Treatment Of Calf Scour

Nassef , S. N. , El-mashad , N.E , El-noor, H. M. and Saleh, I .
Department of Internal Medicine and Infectious Diseases,Faculty of Veterinary Medicine,Cairo University

Abstract

This study was performed on 4 groups of suckling calves (each group consists of 7 calves).Calves in group 1 were apparently healthy and used as a control group.Calves in groups 2,3,4 were suffering from mild diarrhea and degree of dehydration was 6-8%. All diarrheic calves treated with Norodine (Sulfa diazine 200 mg and Tri methoprim 40 mg) (Norbrook company) + Cevarol (vit.c:1000mg) +Kapect (pectin 0.43%&Light kaolin 19.3%)+Life Aid Xtra (Oral rehydration solution) (Norbrook company). In addition to these drugs, Group 2 treated with Royal Jelly capsule (1000 mg) orally per calf as one shot as a source of energy (human drug) (Safe company, Egypt) . Group 3 treated with (G NUTRA 2 S DAT) :10%Garlic extract + 90%Saccharomyces Cerevisae) (15 gm orally per calf) as one shot as immune stimulant and natural antibiotic (Ameco bios company,U .S. A). Group 4 treated with Zinc Oxide (500 mg powder) orally per calf as one shot as immune stimulant(AL ALamia company, Egypt). Three blood Samples were collected from each diarrheic calf at day zero before treatment, the 2nd day and the 6th day after treatment and One blood Sample was taken from each control calf. These samples used for determination of red blood cells , haemoglobin , white blood cells, sodium, potassium, chloride , creatinine and total protein. the three drugs which used in our study as supportive treatment have very good role in treating diarrheic cales , Royal Jelly capsule was the best in correcting Haemoglobin and Cloride. G NUTRA 2 S DAT was the best in correcting the content of WBCs and Creatinine and show significant improvement in the content of K^+. Zinc Oxide was the best in correcting the content of RBCs, Na^+, K^+ and total proteins and show significant improvement in the content of Haemoglobin.

Keywords: Calf Scour, suckling calves, dehydration, immune stimulant

Introduction

Neonatal calf diarrhea is recognized worldwide as one of the biggest challenges for both the beef and dairy industries (Lorenz et al., 2011). In Egypt, Neonatal calf diarrhea continues to be the 1st cause of calf mortality, which ranges between 27.4% and 55% of the total death in young calves (Ahmed,1980) . Economic losses occur not only from mortality but also from other costs including treatment, diagnostics, labor, veterinary intervention and decreased number of herd replace ments as well as subsequent chronic ill thrift and impaired growth performance (Bazeley, 2003) and (El-Seedy et al.,2016) . Diarrhea is a clinical symptom marked by rapid and frequent passage of semisolid or liquid fecal material through the gastro intestinal tract (Dubreuil,2013) .Diarrhea results from interaction of a number of variables, including pathogens, animals, environmental and management factors (Izzo et al., 2011). Numerous infectious agents have been implicated in calf diarrhea. Bovine practitioners and cattle producers are aware of many enteric pathogens because these primary agents have been known to be involved in calf diarrhea for several decades and still greatly influence current cow-calf operations. The major enteric pathogens are Rota virus, Corona virus, BVD virus, Salmonella spp, E.coli, Clostridium. perfri ngens and Cryptosporidium. parvum (Cho ,Y. and Yoon, K. , 2014) . Some patho gens cause secretory diarrhea, causing the small intestine to move from a net absorption of fluid to a net secretion of chloride, sodium, and water into the intestinal lumen . This increase in secretion overwhelms the absorptive capacity of the large intestine, resulting in diarrhea. Other pathogensdamage the small intestinal villi, which results in failure to absorb electrolytes and water (mal absorptive diarrhea). However, regardless of the pathogen or the mechanism involved, diarrhea increases the loss of electrolytes and water in the feces of calves and often decreases milk intake. This process results in dehydration, acidosis and a negative energy balance from anorexia and mal absorption of nutrients (Smith and Berchtold,2014) . Our purpose of this study was performing a comparative studies on (Royal Jelly , G NUTRA 2 S DAT and Zinc Oxide) as a supportive treatment of calf scour.

Materials and Methods:

Animals:

This study was carried out on 28 suckling calves classified into four groups (each group consists of 7 calves)their weights were (30-60 kg) and age(7-50 days), cross breed , Calves in group 1 were apparently healthy and used as a control

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group.Calves in groups 2,3,4 were diarrheic calves with mild diarrhea and degree of dehydration was 6-8%. these calves belonged to a farm in Badr City, AL behira governorate.

Calves were housed in an open yard system under natural lightening, Natural suckling twice daily at Morning and Evening and the water was offered adlibitium.

Clinical examination of diarrheic calves showed (yellowish to greenish, runny or watery fecal score), normal body temperature (39 c) , suckling reflex present, calves slightly depressed but not recumbent, skin tent duration(1–2 seconds), mild dehydration (6%–8%) according to Smith, (2009).

Table. (1); Guidelines for assessment of hydration status in calves with diarrhea

Dehydration	Demeanor	Eyeball Recession	Skin Tent Duration (s)
<5%	Normal	None	<1
6%–8% (mild)	Slightly depressed	2–4 mm	1–2
8%–10% (moderate)	Depressed	4–6 mm	2–5
10%–12% (severe)	Comatose	6–8 mm	5–10
>12%	Comatose/dead	8–12 mm	>10

Drugs:

All diarrhoeic calves (21 calves) treated by the following drugs:

1)1 ampoule cevarol (vit.c:1000mg) as immune stimulant (human drug)

2)Norodine(Sulfa diazine 200 mg and Tri methoprim 40 mg) 1ml/16 kg as antibiotic (Norbrook company).

3)Kapect(pectin 0.43%&Light kaolin 19.3%) 60 ml orally before each suckling by 1 hour ,kaolin act by adsorbing gases, toxins and bacteria from alimentary tract and increase bulk of feaces,Pectin act by coating the intestine (human drug ,one bottle 120 ml, Suspension).

4)Life Aid Xtra ,Oral rehydration solution,sachet 100 gm dissolved in 2 litre water and given to the calf on 2 days at the middle of the day (Norbrook company).This sachet contains : Sodium Citrate Dihydrate 4.681 % w/w, Sodium Acetate Trihydrate 3.917 % w/w , Sodium Propionate 2.293 % w/w , Sodium Chloride 5.589 % w/w , Potassium Chloride 3.559 % w/w , Potassium Dihydrogen Phosphate 1.624 % w/w , Glucose (anhydrous) 75.237 % w/w , Sunset Yellow 0.1 % w/w , Silica Colloidal Anhydrous 3.0% w/w. On reconstitution in 2 litres of water the available concentrations are as follows: Sodium 90 mmol/1, Potassium 25 mmol/1, Chloride 60 mmol/1, Phosphate 5 mmol/1, Propionate 10 mmol/1, Acetate 20 mmol/1, Citrate 6.67 mmol/1, Dextrose 175 mmol/1. The propionate, acetate and citrate ions together yield 50 mmol/l bicarbonate.

In addition to these drugs:

*Group 2 treated with Royal Jelly capsule (1000 mg) orally per calf as one shot as asource of energy (human drug).

*Group 3 treated with G NUTRA 2 S DAT (10%Garlic extract + 90% Saccharomyces Cereviseae) (15 gm orally per calf) as one shot as Immune stimulant and natural antibiotic (Amico bios company,U.S.A).

*Group 4 treated with Zinc Oxide (500 mg powder) orally per calf as one shot as Immune stimulant(AL ALamia company, Egypt).

Sampling

Blood Samples

One blood sample from each normal calf, and 3 blood samples from each diarrheic calf (at zero day before treatment, and at the 2nd day and 6th day after treatment). Blood samples were collected from Jugular vein puncture. a part of these samples collected in clean cork screw tobbed tubes containing anti-coagulant(EDTA). And the other part collected in tubes without anti-coagulant(plain tubes) for obtaining of clear non haemolized serum.

Analysis of Blood

Blood samples in tubes containing anti-coagulant used for determination of red blood cells, haemoglobin and white blood cells.

Blood samples in tubes without anti-coagulant (serum samples) used for determination of sodium, potassium, cloride, creatinine and total protein

Methods

Red blood cells count was determined according to the method described by schalm(1986). Haemoglobin content was determined using method described by Drabkin (1932). White blood cells count was determined according to the method described by schalm, (1986).Sodium and Potassium were determined by the method described byOser, (1965).Cloride was determined according to Feldkamp, (1974). Creatinine was determined by the method described by Brod, (1948).Total protein determined by the method described by Weichsel basum, (1946).

Statistical Analysis

All data were subjected to Statistical Analysis including the calculation of the mean and standard

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error according to Snedecor, and Cochran, (1982). Data were analyzed by one-way ANOVA implying a randomized complete block design using Co state computer program to determine significant difference among treatment groups.

Results

ALL diarrheic calves (21 calves) cured completely;Recovery started from the 2nd day and from the 1st day in some animals ,before the 6th day all calves were apparently healthy,fecal consistency corrected gradually from watery or runny to pasty or semi solid then normal or ideal condition

Table (2): Mean ± standard error of red blood cells(x 10^{12}/L) count in control and treated diarrheic calves:

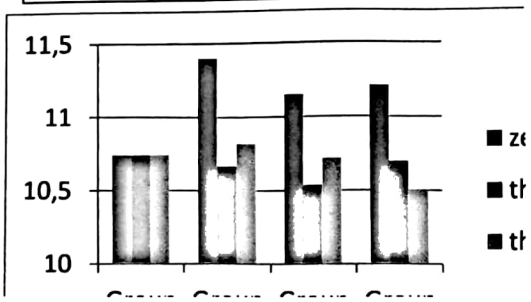
Days of treatment	Group 1 n =7	Group 2 n =7	Group 3 n =7	Group 4 n =7
Zero day	4.59±0.23 ^{Ab}	5.29±0.23 ^{Ab}	5.08±0.40 ^{Ab}	6.56±0.66 ^{Aa}
The 2 nd day	4.59±0.23 ^{Aa}	5.18±0.30 ^{Aa}	5.04±0.31 ^{Aa}	4.54±0.24 ^{Ba}
The 6 th day	4.59±0.23 ^{Aa}	4.98±0.29 ^{Aa}	4.63±0.31 ^{Aa}	4.33±0.18 ^{Ba}

Values with different (A, B, C within columns and a, b, c within rows) differ significantly at (P<0.05). Group 1 = control. Group 2 =treated with Royal jelly.Group 3 =treated with G NUTRA 2 S DAT. Group 4= treated with Zinc oxide.n = number of calves per group.

In figure 1 .showed that, there was a significant increase(P<0.05) in RBCs count in group 4 at Zero day before treatment (6.56±0.66) which treated with (Zn o) when compared with other experimental groups (group 2 (5.29±0.23) and group 3 (5.08±0.40))which also showed increase in RBCs count more than the control group (4.59±0.23) but this increase is not significant . This increase was corrected by treatment, the correction was significant also in group 4 which treated with (Zn o) and non significant in groups 2,3 which treated with Royal Jelly and G NUTRA 2 S DAT,respectively.RBCs count in group 2 was (5.18±0.30) in the 2 nd day and (4.98±0.29) in the 6 th day, RBCs count in group 3 was (5.04±0.31) in the 2 nd day and (4.63±0.31) in the 6 th day and RBCs count in group 4 was (4.54±0.24) in the 2 nd day and (4.33±0.18) in the 6 th day

Table (3): Mean ± standard error of Haemoglobin (gm/ dl) in control and treated diarrheic calves:

Days of treatment	Group 1 n =7	Group 2 n =7	Group 3 n =7	Group 4 n =7
Zero day	10.74±0.56 ^{Aa}	11.40±0.12 ^{Aa}	11.15±0.23 ^{Aa}	11.21±0.31 ^{Aa}
The 2 nd day	10.74±0.56 ^{Aa}	10.67±0.15 ^{Ba}	10.54±0.28 ^{Aa}	10.70±0.08 ^{ABa}
The 6 th day	10.74±0.56 ^{Aa}	10.82±0.15 ^{Ba}	10.72±0.08 ^{Aa}	10.50±0.07 ^{Ba}



In figure 2 .showed that, there was non significant increase in (Hb) content in all experimental groups at Zero day before treatment, (Hb) content in group 2 was (11.40±0.12), in group 3 was (11.15±0.23) and in group 4 was (11.21±0.31) compared to the control group (10.74±0.56). This increase was corrected by treatment, the correction was significant in groups 2 and 4 which treated with (Royal Jelly) and (Zn o), respectively.and non significant in group3 which treated with and G NUTRA 2 S DAT.(Hb) content in group 2 was (10.67±0.15) in the 2 nd day and (10.82±0.15) in the 6 th day, (Hb) content in group 3 was (10.54±0.28) in

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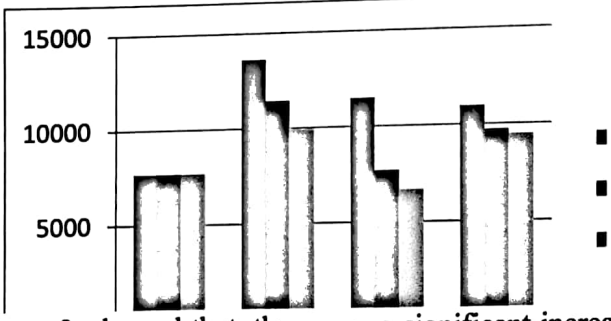
the 2 nd day and (10.72±0.08) in the 6 th day and (Hb) content in group 4 was (10.70±0.08) in the 2 nd day and (10.50±0.07) in the 6 th day.

Table (4): Mean ± standard error of white blood cells count (per micro litre) in control and treated diarrheic calves:

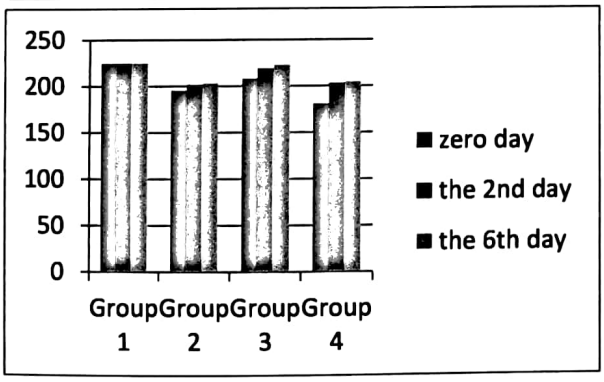
Days of treatment	Group 1 n =7	Group 2 n =7	Group 3 n =7	Group 4 n =7
Zero day	7671.42±806.41 ^{Ab}	13614.28±1748.5 ^{Aa}	11471.42±239.28 ^{Aa}	10950±1097.99 ^{Aa}
The 2nd day	7671.42±806.41 ^{Ab}	11428.57±1229.68 ^{Aa}	7680±480.32 ^{Bb}	9714.28±801.27 ^{Aab}
The 6th day	7671.42±806.41 ^{Ab}	9914.28±700.98 ^{Aa}	6691.42±477.64 ^{Bb}	9462.85±276.63 ^{Aa}



In figure 3 .showed that, there was a significant increase in WBCs count in all experimental groups at Zero day before treatment, WBCs count in group 2 was (13614.28±1748.5), in group 3 was (11471.42±239.28) and in group 4 was (10950±1097.99) compared to the control group (7671.42±806.41).This increase was corrected by treatment, the correction was significant in group3 which treated with G NUTRA 2 S DAT and non significant in groups 2 and 4 which treated with (Royal Jelly) and (Zn o), respectively.WBCs count in group 2 was (11428.57±1229.68) in the 2 nd day and (9914.28±700.98) in the 6 th day, WBCs count in group 3 was (7680±480.32) in the 2 nd day and (6691.42±477.64) in the 6 th day and WBCs count in group 4 was (9714.28±801.27) in the 2 nd day and (9462.85±276.63) in the 6 th day.

Table (5): Mean ± standard error of serum sodium (Na^+) (m Eq / L) in control and treated diarrheic calves:

Daysof treatment	Group 1 n =7	Group 2 n =7	Group 3 n =7	Group 4 n =7
Zero day	224.42±10.64 ^{Aa}	195.16±4.21 ^{Abc}	207.71±5.78 ^{Aab}	180.58±3.31 ^{Bc}
The 2 nd day	224.42±10.64 ^{Aa}	201.24±3.25 ^{Ab}	218.67±7.51 ^{Aab}	202.87±0.61 ^{Ab}
The 6 th day	224.42±10.64 ^{Aa}	202.66±6.82 ^{Aa}	222.50±7.16 ^{Aa}	203.94±0.95 ^{Aa}



Infigure4.showed that, there was a significant decrease in (Na^+) in all experimental groups at Zero day before treatment, (Na^+) in group 2 was (195.16±4.21), in group 3 was (207.71±5.78) and in group 4 was (180.58±3.31) compared to the control group (224.42±10.64). This decrease was corrected by treatment, the correction was significant in group 4 which treated with (Zn o) and non significant in groups 2,3 which treated with Royal Jelly and G NUTRA 2 S DAT,respectively.(Na^+) in group 2 was (201.24±3.25) in the 2 nd day and (202.66±6.82) in the 6 th day, (Na^+) in group 3 was (218.67±7.51) in the 2 nd day and (222.50±7.16) in the 6 th day and (Na^+) in group 4 was (202.87±0.61) in the 2 nd day and (203.94±0.95) in the 6 th day.

Table (6): Mean ± standard error of serum potassium (K^+) (m Eq / L) in control and treated diarrheic calves.

Days of treatment	Group 1 n=7	Group 2 n=7	Group 3 n=7	Group 4 n=7
Zero day	4.51±0.28 ^{Ab}	6.78±0.53 ^{Aa}	6.94±0.36 ^{Aa}	7.43±0.29 ^{Aa}
The 2 nd day	4.51±0.28 ^{Ab}	6.15±0.45 ^{Aa}	5.85±0.27 ^{Ba}	6.83±0.40 ^{Aa}
The 6 th day	4.51±0.28 ^{Ab}	5.84±0.43 ^{Aa}	5.20±0.27 ^{Bab}	5.08±0.25 ^{Bab}

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Table (7): Mean ± standard error of serum cloride(Cl^-) (M. MOL / L) in control and treated diarrheic calves:

Days of treatment	Group1 n=7	Group2 n=7	Group3 n=7	Group4 n=7
Zero day	113.79±3.23 ^{Aa}	91.84±3.94 ^{Bb}	97.87±3.03 ^{Ab}	107.68±2.36 ^{Aa}
The 2 nd day	113.79±3.23 ^{Aa}	101.78±1.46 ^{Ab}	98.82±1.34 ^{Ab}	110.66±4.26 ^{Aa}
The 6 th day	113.79±3.23 ^{Aa}	105.20±3.06 ^{Aab}	99.84±1.58 ^{Ab}	111.70±3.32 ^{Aa}

Table (8): Mean ± standard error of serum creatinine (Mg /dl) in control and treated diarrheic calves:

Days of treatment	Group1 n=7	Group2 n=7	Group3 n=7	Group4 n=7
Zero day	2.50±0.13 ^{Ab}	2.70±0.20 ^{Aab}	3.04±0.08 ^{Aa}	2.73±0.11 ^{Aab}
The 2 nd day	2.50±0.13 ^{Aa}	2.54±0.18 ^{Aa}	2.62±0.17 ^{Ba}	2.57±0.25 ^{Aa}
The 6 th day	2.50±0.13 ^{Aa}	2.51±0.20 ^{Aa}	2.54±0.09 ^{Ba}	2.51±0.25 ^{Aa}

Table (9): Mean ± standard error of serum total protein (gm /dl) in control and treated diarrheic calves:

Days of treatment	Group1 n=7	Group2 n=7	Group3 n=7	Group4 n=7
Zero day	7.10±0.19 ^{Ac}	8.37±0.25 ^{Ab}	9.46±0.12 ^{Aa}	8.19±0.21 ^{Ab}
The 2 nd day	7.10±0.19 ^{Ac}	8.29±0.06 ^{Ab}	9.39±0.13 ^{Aa}	7.05±0.17 ^{Bc}
The 6 th day	7.10±0.19 ^{Ac}	8.10±0.13 ^{Ab}	8.96±0.31 ^{Aa}	7.06±0.13 ^{Bc}

Discussion

In table 2 .showed that, there was a significant increase ($P<0.05$) in RBCs count in group 4 which treated with (Zn o) when compared with other experimental groups which also showed increase in RBCs count but not significant. This result of Increased RBCs agreedwith (Kumar et al.,2010), (Malik et al.,2013), (Abdel Megeed et al.,2015) and (Gharieb, et al.,2015) and disagreed with (Samad et al.,2003) and (Ghanem et al.,2012). The increase in RBCs count might be due to Hypo volaemia and haemo concentration due to loss of extra cellular fluid in diarrheic feces. This increase was corrected by treatment, the correction was significant also in group 4 which treated with (Zn o) and non-significant in groups 2 and 3 which treated with Royal Jelly and G NUTRA 2 S DAT,respectively.

In table 3,non-significant increase in (Hb) in all experimental groups compared to the control group. This result of increased Hb agreed with (Kumar et al.,2010), (Ghanem et al.,2012), (Malik et al.,2013), (Abdel Megeed et al., 2015) and (Altug, et al.,2016).and disagreed with(Samad et al.,2003). The increase in Hb might be due to Hypo volaemia and haemo concentration due to loss of extra cellular fluid in diarrheic feces. This increase was corrected by treatment, the correction was significant in groups 2 and 4 which treated with (Royal Jelly) and (Zn o), respectively. Andnon-significant in group3 which treated with and G NUTRA 2 S DAT.

In table 4, a significant increase in (WBCs) in all experimental groups compared to the control group. This result agreed with (Kumar et al.,2010), (Ghanem et al., 2012), (Malik et al., 2013), (Gharieb,R. et al.,2015), (Abdel Megeed et al,2015) and (Altug N et al.,2016) disagreed with (Samad et al.,2003). The increase in WBCs count might be due to natural defense of body against infectious agents and response to inflammatory lesions and also due to haemo concentration due to loss of extra cellular fluid in diarrheic feces.This increase was corrected by treatment, the correction was significant in group3 which treated with G NUTRA 2 S DAT and non-significant in groups 2 and 4 which treated with (Royal Jelly) and (Zn o) , respectively.

In table 5, a significant decrease in serum sodium (Na+) in all experimental groups compared to the control group. This result agreed with (Kumar et al,2010), (Ghanem et al.,2012),(Mamta Singh et al.,2014) and (Kadria. et al.,2015). And disagreed with (Kaur et al.,2006) The decrease of Na+ may be due to loss of large amount of it with intestinal secretion and diarrhea. This decrease was corrected by treatment, the correction was significant in group 4 which treated with (Zn o) and non-significant in groups 2 and 3 which treated with Royal Jelly and G NUTRA 2 S DAT,respectively.

In table 6, a significant increase in serum potassium (K+) in all experimental groups compared to the control group. This result agreed with (Kumar et al .,2010), (Ozcan et al., 2011), (Zeybek and Civelek.,2014) , (Mamta Singh et al., 2014) and (Altug et al.,2016). And disagreed with (Flores et al.,2006) and (Silva et al.,2010).Hyperkalaemia has been shown to be an important electrolyte disturbance in many studies of calf diarrhea (Lewis and Phillips, 1973; Groutides and Michell, 1990; Grove-White, 2007; Koch and Kaske, 2008). The hyper kalaemia occurs despite diarrhea causing a significant net

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loss of K+ (Lewis and Phillips, 1972) because the buffering required to counteract the acidaemia resulting from the diarrhea means that K+ leaves the cells in order to maintain intra cellular electro neutrality (Lewis and Phillips, 1973; Kaske, 1994; Sweeney, 1999). This is exacerbated by dysfunction of the Na+/K+-ATPase, which distributes K+ between the intracellular and extracellular space (Constable, 2002) and impairment of renal excretion of K ions as a result of the hypo volaemia (Sweeney, 1999; Carlson and Bruss, 2008) .Hyper kalaemia in diarrheic calves is more closely correlated to dehydration than to parameters indicating metabolic acidosis. Impairment of the ability to stand in diarrheic calves. (Trefz et al,2013). This increase was corrected by treatment, the correction was significant in groups 3 and 4 which treated with G NUTRA 2 S DAT and (Zn o), respectively.and non-significant in group 2 which treated with (Royal Jelly).

In table 7. a significant decrease in serum chloride (Cl-) in groups 2 and 3 which treated with Royal Jelly and G NUTRA 2 S DAT,respectively and non-significant in group 4 which treated with (Zn o). This result of decreased Cl- agreed with (Ozcan et al.,2011), (Ghanem et al.,2012), (Mamta Singh et al., 2014) and (Abdel Megeed et al.,2015) and disagreed with(Malik et al.,2013). The decrease of Cl- may be due to loss of large amount of it with intestinal secretion and diarrhea. This decrease was corrected by treatment, the correction was significant only in group 2 which treated with Royal Jelly and non-significant in groups 3 and 4 which treated with G NUTRA 2 S DAT and (Zn o), respectively.

In table 8, a significant increase in serum creatinine in all experimental groups compared to the control group. This result of Increased Creatinine agreed with (Ozcan et al.,2011), (Ghanem et al.,2012), (Mamta Singh et al.,2014) , and (Altug,. et al.,2016). Increased creatinine may be due to dehydration, haemoconcentration, renal insufficiency and decrease glomerular filtration rate. This increase was corrected by treatment; the correction was significant in group 3 which treated with and G NUTRA 2 S DAT. Andnon-significant in groups 2 and 4 which treated with (Royal Jelly) and (Zn o), respectively.

In table 9, a significant increase in (TP) in all experimental groups compared to the control group. This result agreed with (Kumar et al.,2010), (Ghanem et al.,2012),(Mamta Singh et al.,2014)and disagreed with (Ozcan et al.,2011), (Abdel Megeed et al.,2015) and (Gharieb, et al.,2015). Increased total proteins may be due to dehydration, decrease glomerular filtration rate and release of intra cellular proteins due to tissue break down. This increase was corrected by treatment, the correction was significant in group 4 which treated with (Zn o) and non-significant in groups 2 and 3 which treated with (Royal Jelly) and G NUTRA 2 S DAT, respectively.

Conclusion

The present results indicate that ,there were variation in(RBCs , Hb , WBCs , Na+,K+ ,CL- , Creatinine and Total protein) between normal and diarrheic calves. Sometimes variation was not significant because diarrheic calves in this study were suffered from mild degree of diarrhea and degree of dehydration was 6-8%. The results also indicate that, there were increase in (RBCs , Hb ,WBCs , K+, Creatinine and Total protein) in diarrheic calves. But Na+ and CL- were decreased.

In general, the three drugs which used in our study as supportive treatment have very good role in treating diarrheic cales , Royal Jelly capsule was the best in correcting Hemoglobin and Chloride.

G NUTRA 2 S DAT was the best in correcting the content of WBCs and Creatinine and show significant improvement in the content of K+ Zinc Oxide was the best in correcting the content of RBCs, Na+, K+ and total proteins and show significant improvement in the content of Hemoglobin.

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الملخص العربى

تم إجراء هذه الدراسة على 28 عجل رضيع وهذه العجول عبارة عن (مجموعة من العجول طبيعية وسليمة وتتكون هذه المجموعة من7عجول وتم استخدامها كضوابط للتجارب + 21 عجل مصابين بإسهال خفيف وكانت درجة الجفاف 6-8% وكان هدفنا من الدراسة هو عمل دراسات مقارنة على ثلاثة علاجات داعمة (رويال جيلي وجى نترا 2 اس دات(مستخلص الثوم10%+خميرة غيرنشطة90%)واكسيد زنك.

التجربة 1:

"في" هذه التجربة تم علاج 7 عجول من الإسهال باستخدام كبسولة الرويال جيلى+نوردين+ سيفارول + كابيكت +لايفا ايد اكسترا.تم الحصول على عينة الدم من كل عجل فى اليوم صفر قبل اعطاء العلاج مباشرة واليوم الثاني واليوم السادس بعد العلاج وذلك للتحقيق من أثر الإسهال في بعض المعلمات من الدم والمصل والتحقيق أيضا من تأثير كبسولة الرويال جيلى كعلاج داعم لإسهال عجول، ويمكن تلخيص نتائج هذه التجربة كما يلى:

معلمات دموية:

فى هذه التجربة كانت الزيادة غير مؤثرة فى كرات الدم الحمراء والهيموجلوبين والتي قد تكون بسبب الإسهال الخفيف بينما كانت الزيادة مؤثرة في كرات الدم البيضاء.وقد كان لكبسولة الرويال جيلى تاثير ملحوظ فى معالجة الزيادة فى الهيموجلوبين بينما تاثيره فى معالجة باقى المعلمات الدموية لم يكن ملحوظ.

معلمات المصل:

كان يوجد نقص شديد فى الصوديوم والكلوريد وقد كان لكبسولة الرويال جيلى تاثير ملحوظ فى معالجة النقص الموجود فى الكلوريد بينما لم يكن التاثير ملحوظ فى معالجة النقص فى الصوديوم.كان يوجد زيادة كبيرة فى البوتاسيوم والكرياتينين والبروتين الكللى . وقد كان لكبسولة الرويال جيلى تاثير غير ملحوظ فى معالجة الزيادة فى البوتاسيوم والكرياتينين والبروتين الكللى

التجربة2:

"في" هذه التجربة تم علاج 7 عجول من الإسهال باستخدام(جى نترا 2 اس دات)+نوردين+ سيفارول + كابيكت +لايفا ايد اكسترا.تم الحصول على عينة الدم من كل عجل فى اليوم صفر قبل اعطاء العلاج مباشرة واليوم الثاني واليوم السادس بعد العلاجوذلك للتحقيق من أثر الإسهال في بعض المعلمات من الدم والمصل والتحقيق أيضا من تأثير (جى نترا 2 اس دات)كعلاج داعم لإسهال عجول، ويمكن تلخيص نتائج هذه التجربة كما يلى:

معلمات دموية:

فى هذه التجربة كانت الزيادة غير مؤثرة فى كرات الدم الحمراء والهيموجلوبين والتي قد تكون بسبب الإسهال الخفيف بينما كانت الزيادة مؤثرة في كرات الدم البيضاء .وقد كان ل(جى نترا 2 اس دات) تاثير ملحوظ فى معالجة الزيادة فى كرات الدم البيضاء بينما تاثيره فى معالجة باقى المعلمات الدموية لم يكن ملحوظ.

معلمات المصل:

كان يوجد نقص شديد فى الصوديوم والكلوريد وقد كان ل(جى نترا 2 اس دات) تاثيرغير ملحوظ فى معالجة النقص الموجود فى فى الصوديوم والكلوريد و كان يوجد زيادة كبيرة فى البوتاسيوم والكرياتينين والبروتين الكللى . وقد كان ل(جى نترا 2 اس دات) تاثير ملحوظ فى معالجة الزيادة فى البوتاسيوم والكرياتينين بينما تاثيره فى معالجة الزيادة الموجودة فى البروتين الكللى لم يكن ملحوظ.

التجربة3:

"في" هذه التجربة تم علاج 7 عجول من الإسهال باستخدام اكسيد الزنك+نوردين+ سيفارول + كابيكت +لايفا ايد اكسترا.تم الحصول على عينة الدم من كل عجل فى اليوم صفر قبل اعطاء العلاج مباشرة واليوم الثاني واليوم السادس بعد العلاج وذلك للتحقيق من أثر الإسهال في بعض المعلمات من الدم والمصل والتحقيق أيضا من تأثير اكسيد الزنك كعلاج داعم لإسهال عجول، ويمكن تلخيص نتائج هذه التجربة كما يلى:

معلمات دموية:

فى هذه التجربة كانت الزيادة غير مؤثرة فى الهيموجلوبين ووالتي قد تكون بسبب الإسهال الخفيف بينما كانت الزيادة مؤثرة في كرات الدم الحمراء وكرات الدم البيضاء .وقد كان لاكسيد الزنك تاثير ملحوظ فى معالجة الزيادة فى كرات الدم الحمراء والهيموجلوبين بينما تاثيره فى معالجة كرات الدم البيضاء لم يكن ملحوظ.

معلمات المصل:

كان يوجد نقص شديد فى الصوديوم والكلوريد وقد كان لاكسيد الزنك تاثير ملحوظ فى معالجة النقص الموجود فى الصوديوم بينما لم يكن التاثير ملحوظ فى معالجة النقص فى الكلوريد.كان يوجد زيادة كبيرة فى البوتاسيوم والكرياتينين والبروتين الكللى . وقد كان لاكسيد الزنك تاثير ملحوظ فى معالجة الزيادة فى البوتاسيوم والبروتين الكللى بينما تاثيره فى معالجة الزيادة الموجودة فى الكرياتينين لم يكن ملحوظ.

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