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Study of some of the physiological and biochemical effects of the moon face drug in male and female rabbits

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Abstract:

Objective: The aim of this study is to know the negative effects of the moon face drug in some the physiological and biochemical parameters and weight of the Rabbits.

Methods: The rabbits (1467 ±13 gm – male and 1000 ±50 gm - female) were divided into three groups according to the gender , (6 rabbits in each group): the first group (F.G.) was treated with 1mL normal saline (control group), the second group (S.G.) was treated with 5mg/kg/body weight (B.W.) of drug, While the third group (T.G.) was treated with 10 mg/kg/body weight (B.W.) of drug . All animals were treated orally for 28 days.

Results: The results of the current study showed some changes in the animal weight during the duration of the experiment between the three groups of the male rabbits . However, at the end of the experiment period, there were no significant differences in weight between these groups. When comparing the weight within the same group, the results showed a significant increase ($p \leq 0.05$) in the F.G. on the 28th day compared with the first day and no significant differences were observed in the S. and the T.Gs. when compared the first day with the last day of the experiment, as well as for females except a significant decrease in the second group compared with the first and the third groups at the end of the experiment.

On the other hand, the results showed a significant decrease ($p \leq 0.05$) in the R.B.C. count and Hb in the S. and T.Gs compared with the F.G., a significant decrease in the Hct in the T.G. compared with the F. and the S.Gs. and a significant increase in M.C.V.in the T.G. compared with the F and the S.G. in the males rabbits. As for females, the results appeared a significant decrease ($p \leq 0.05$) in R.B.C. count , Hct rat and MCV in the T.G. compared with the F. and the S.Gs., as well as a

significant decrease in Hb and MCHC in S. and the T.Gs. compared with the F.G., In addition to the a significant increase in the total count of W.B.C. and platelets in the S. and the T.Gs. compared to the F.G. , a significant increase in neutrophil rate in the T.G. compared with the F. and the S.Gs. and a significant decrease ($p \leq 0.05$) in lymphocytes rate in the T.G. compared with the F. and the S.Gs. in the males rabbits, and a significant increase in the total count of W.B.C., lymphocytes rate and platelet in the T.G. compared with the F. and the S.Gs., and a significant decrease in the neutrophil rate in the T.G. compared with F. and the S.Gs.in females rabbits.

As the results showed a significant increase ($p \leq 0.05$) in GOT, GPT and ALP value in the S. and the T. Gs. when compared with the F.G. and a significant increase in the value of GPT and ALP in the T.G. when compared with the S.G., While the Females groups showed a significant increase in the value of GPT and ALP in the T.G. compared with the F. and the S.Gs. The results showed a significant increase($p \leq 0.05$) in the concentration of urea in the S.G. compared with the F.G. and in the T.G. compared with the F. and the S.Gs. in the males and females rabbits and a significant increase in the concentration of Creatinine in the T.G. compared with the F. and the S.Gs. in the males rabbits, On the other hand, there is a significant increase ($p \leq 0.05$) in the concentration of glucose and bilirubin in males and females in T.G. compared with the F. and the S.Gs., as well as the total protein in the females, but in males, there was a significant increase in the T.G. when compared with the F.G.

Introduction

Moon Face is one of the drugs that are locally manufactured and sold without physician advice by some pharmacists for the purpose of getting a full face and inflated, It synthesis by mixing a group of drugs with each other a constant rates (Dexamethasone (Dexm) 10%, Multivitamins 40% and Periactin (Cyproheptadine) 50%).

Dexamethasone (Dexm): is a powerful synthetic drug, that outperforms natural cortisone several times(20 to 30 times) and more than prednisone(4 to 5 times) has pure activity as the glucocorticoids hormone, it acts as an immunosuppressant and anti-inflammatory (Sharon *et al*.,2009 and Schmelzeisen & Frolich ,2004) and is used in treatment of

allergies, the gluconeogenesis stimulating, increased protein catabolism , (Wasch *et al*.,2001), treatment insufficiency of adrenal gland, Disorders that rarely occur in the resistance of adrenal cortex hormones (Charmandari *et al*.,2008 ; Chrousos *et al*.,1993), In ddison's syndrome and insufficiency of adrenal and if not responding to methylprednisolone or toprednisone (Bloom *et al*.,2001). It has a high linkability with receptors of glucocorticoid and less than for receptors of mineralocorticoid (Rebuffat *et al*.,2004) and increases blood pressure without affecting the concentration of mineral cortex and absence sodium retention (Whitworth *et al* 1989) .

Periactin (Cyproheptadin(Cypro.) : Synthetic drugs were special drugs that use chemical product and synthesis in laboratory. The harmful properties of synthetic substances range from sickness to drug-induced psychosis (Meetei *et al*., 2016). It is well known that Cyproheptadine (periactin) is a first-generation antihistamine with anti-serotonergic which used as a good treatment for allergic reactions, vasomotor mucosal edema as well as edema of the throat and antiserotonergic (Hargove *et al*.,2009; Rijnders, *et al., 2000)*. It could used to manage cases of serotonin syndrome. Furthermore, it is used to treat of cyclical vomiting syndrome, cachexia, severe malnutrition and anorexia. The continuous using of this drug could stimulate the appetite, weight gain, improve sleep, calmness, and mood and energy levels (Couluris *et al*.,2008 ; Andersen *et al.,* 1997).

The possible mechanisms for appetite-stimulating effect could happened by increasing energy intake concluded more eating need and stimulation of growth hormone secretion (Rerksuppaphol & Rerksuppaphol, 2010). Using Cyproheptadine could be a modality for improving the nutritional status in children with malnutrition. effects of Cypro. could involve: sedation and sleepness, restlessness, dizziness, disturbed coordination, , nervousness, excitation, and weight gain (Homnick *et al*., 2005).

Cypro. has a good capacity of absorbing after oral ingestion in addition to peak plasma levels happening after 1-3 h. (He *et al*., 2012; Maox *et al*., 2008) .It is used in cats as an appetite stimulant and as an adjunct in the treatment of asthma (Paoluzzi *et al*., 2009). One of the

most essential effect of cypro. is having hematologic side effects involving hemolytic anemia, a granulocytosis, and other serious side effects, Interestingly , these effect are not restricted to low platelet count and heat stroke (Konta and Ekerolu, 2015).

Multivitamins: The term of multivitamins and minerals (MVM) refers to a wide range of products that are a mixture of important vitamins and minerals with different structure and properties. They do not have any scientific, commercial or bioavailability regulatory definitions despite their wide use. The multivitamin and multiminerals database use the labled values in the drug publication instead of the actual analytical values, so we note a difference in amount of vitamins and minerals between the labled values and the actual values (Elizabeth , 2007).

A multivitamin is a special substance that uses to be a dietary supplement with vitamins, dietary minerals, and other nutritional elements for the body. It is found, in many forms like tablets, pastilles, powders, capsules and liquids. It should take under medical supervision which are the most common dietary supplements in U.S. which contain amounts of different vitamins, minerals and vitamin (NIHSSP,2007) such as C, B_1, B_2, B_3, B_5, B_6, B_9, B_{12}, biotin, A, E, D_2 (or D_3), K, potassium, iodine, selenium, borate, zinc, calcium, magnesium, manganese, molybdenum, beta carotene, and The uses of it depend on sex and age (Rock,2007), It could use for women , children with certain medical conditions. Research on multivitamin appeared that using of it were beneficial for human for solving many diseases (Neuhouser *et al*.,2009) Also vitamin E and vitamin C drug supplements could limit the Oxidative stress and have effect on fertility (Rajeswary *et al*.,2007 ; Agarwal *et al*.,2004), Furthermore, vitamins E and C are biologically essential for many organism functions, such as their participation in regulating the immune system and lymphocytes(Fahmy *et al*.2008 ; Doyle,2002)

2-Materials and methods

2-1: Experiment animals

2-1-1: The Rabbits were used in the current study which raised at the Animal House at the College of Agriculture - Sumer University, and treated with drug after 10 days for adaptation to laboratory environment.

2-1-2:Divided of animals: The animals were divided into three groups, each group consists of six animals:

1- The first group (F.G) (the Control): Treated(orally) with 1 ml of physiological solution for 28 day.

2- The second group (S.G.):Treated (orally) with 5mg/kg/body weight(B.W.) of drug for 28 day.

3- The third group (T.G.): Treated(orally) with 10mg/kg/Body weight(B.W.) of drug for 28 day.

2-2:body weight : The weight of the animals was measured during the study period on the first day of the experiment, and the days 7th , 14th , 21th and the last day(28th).

2-3:blood parameters: Blood parameters have been calculated by blood cell counting device.

2-4:liver functions : Aspartate transaminase (AST) (GOT) :According to the method of Reitman & frankel (1957) method. Alanine transaminase (ALT)(GPT) :According to Reitman & frankel (1957) method. Alkaline phosphatase (ALP) :According Kind and King (1954) method .

2-5:Urea concentration: According to wills and Savory (1981)method. Using of reagents were supplied by Biomerieux (France) company.

3- The results

3-1:Effect of drug in the body weight of rabbit. The results of the current study showed that there are no significant differences in body weight of the male rabbits between the different groups in the first day, a significant decrease ($p \leq 0.05$) in the third group (T.G.) compared with the first group (F.G.) and the second group (S.G.) in the seventh and fourteenth day, a significant decrease ($p \leq 0.05$) in the S.G. and T.G. compared with F.G.. and there are no significant differences between all group in the twenty eight day, (Table 1). When compared the body weight within the same group the results appear a significant increase +($p \leq 0.05$)

in the twenty eight the day compared with the first and seventh day in F.G., no significant differences within the S.G. and a significant increase in the twenty eighth compared with the seventh day and no-significant increase ($p \leq 0.05$) compared with the first day within T.G. .)

Table (1):Effect of the drug in body weight of the male rabbits.(n=6) (M ± SE

The weight / The group	Weight in the first day (gm)	Weight in the seventh day (gm)	Weight in the 14th day (gm)	Weight in the 21th day (gm)	Weight in the 28th day (gm)
F.G. (1ml N.S.)	**1480.5** ±12.44 **aA**	**1485.33** ±12.02 **aA**	**1494.00** ±10.78 **aAB**	**1511.50** ±9.44 **aAB**	**1528**±15.72 **aB**
S.G. (5mg/kg/B.W.)	**1467.16** ±18.14 **aA**	**1455.00** ±15.43 **aA**	**1460.00** ±16.93 **aA**	**1445.33**±20.53 **bA**	**1464.16**±11.12 **aA**
T.G. (10mg/kg/B.W.)	**1458.5** ±20.50 **a AB**	**1385.1** ±48.25 **bA**	**1426.33** ±23.61 **bAB**	**1415.00**±16.07 **bAB**	**1504.83**±38.95 **aB**

The different in the small letters refers to the significant differences between groups –the different in the capital letters refer to the significant differences within the same group.

For females no significant differences ($p \leq 0.05$) were recorded in the first day and the fourteenth day, a significant decreases in T.G. compared with F.G. and S.G. in seventh day and a significant decrease in the S.G. and the T.G. compared with the F.G. in the twenty first and the twenty eighth day.

In the same group, there is a significant increase ($p \leq 0.05$) in the twenty eighth day when compared with the one day in the F.G. and there are no significant differences within the S.G. and the T.G. (table 2).

Table (2): Effect of drug in body weight of the female rabbits.(n=6) (M ± SE) .

The weight / The group	Weight in the first day (gm)	Weight in the seventh day (gm)	Weight in 14 day (gm)	Weight in the 21 day (gm)	Weight in the 28 day(gm)
F.G. (1ml N.S.)	**1041.6** ±36.21 **aA**	**1051.16** ±37.61 **aA**	**1064.83** ±39.35 **aAB**	**1099.50** ±9.44 **aA**	**1163.00**±29.09 **aB**

S.G. (5mg/kg/B.W.)	**1000.16** ±17.32 ^{aA}	**1026.66** ±18.76 ^{aA}	**1016.00** ±32.04 ^{aA}	**982.16** ±20.53 ^{bA}	**940.83** ±19.30^{bA}
T.G. (10mg/kg/B.W.)	**1050.0** ±34.77 ^{aA}	**975.66** ±36.31 ^{bA}	**1004.16** ±27.94 ^{aA}	**967.00** ±16.96 ^{bA}	**1005.83**±27.35^{abA}

The different in the letters refers to the significant differences between groups – the different in the capital letters refers to the significant differences within the same group.

3-2:Effect of drug in the R.B.C. parameters of rabbit.

The results in table (3) showed a significant decrease ($p \leq 0.05$) in R.B.C. count and Hb concentration of male rabbits R.B.C. parameters in the S.G. and the T.G. compared with the F.G., a significant decrease in hemoglobin concentration (Hb) in the T.G. compared with the S.G. and a significant decrease in Hematocrit (Hct) and M.C.V. in T.G. compared with F.G.

Table (3): Effect of the drug in R.B.C. parameters of male.(n=6) (M ± SE) .

The parameters / The groups	R.B.C.count ($\times 10^6$/mm^3)	Hb (gm/dl)	Hct (%)	MCV (fl)	MCH (pg)	MCHC (g/dl)
F.G. (1ml N.S.)	**6.123** ±0.105 ^{a}	**12.13** ± 0.13 ^{a}	**38.30** ± 0.24 ^{a}	**64.05** ± 0.51 ^{a}	**20.11** ± 0.32 ^{a}	**31.23** ± 0.13 ^{a}
S.G. (5mg/kg/B.W.)	**5.6500** ±0.20 ^{b}	**11.15** ± 0.35 ^{b}	**37.66** ±0.420 ^{a}	**64.53** ± 0.66 ^{a}	**19.75** ± 0.23 ^{a}	**29.65** ± 0.42 ^{a}
T.G. (10mg/kg/B.W.)	**4.8550** ± 0.18 ^{b}	**9.88** ± 0.29 ^{c}	**31.71** ±1.45 ^{b}	**68.26** ± 0.29 ^{b}	**20.25** ± 0.18 ^{a}	**29.76** ± 0.42 ^{a}

The different in the letters refer to the significant differences between groups.

On the other hand, in females there is a significant decrease ($p \leq 0.05$) in R.B.C. count, Hb concentration, Hct rate, and M.C.H.C. in the T.G. compared with the F.G., a significant decrease in Hb concentration and M.C.H.C. in the S.G. compared with the F.G. and a significant increase in M.C.V. in the T.G. compared with the F.G. and the S.G. (table 4).

Table (4): Effect of the drug in R.B.C. parameters of females.(n=6) (M ± SE)

The parameters	R.B.C. count $\times 10^6$/mm^3	Hb gm/dl	Hct (%)	MCV (fl)	MCH (pg)	MCHC (g/dl)

The group						
F.G. (1ml N.S.)	**6.2300** ±0.12 [a]	**12.38** ±0.13 [a]	**39.00** ±0.27 [a]	**62.96** ±0.25 [a]	**20.06** ±0.24 [a]	**32.00** ±0.27 [a]
S.G. (5mg/kg/B.W.)	**6.0833** ±0.18 [a]	**11.31** ±0.35 [b]	**38.18** ±0.50 [a]	**64.68** ±0.58 [a]	**20.20** ±0.36 [a]	**27.66** ±0.55 [b]
T.G. (10mg/kg/B.W.)	**4.9050** ±0.12 [b]	**9.78** ±0.29 [c]	**33.70** ±0.99 [b]	**66.26** ±0.92 [b]	**19.3** ±0.35 [a]	**29.36** ±0.21 [c]

The different in the letters refer to the significant differences between groups.

3-3:Effect of drug in W.B.C. and platelet count of Rabbit.

Results of the present study showed a significant increase ($p \leq 0.05$) in the total W.B.C. and platelet count in the S.G. and the T.G. compared with the F.G., a significant decrease in lymphocyte rate in the T.G. compared with the F.G. and S.G. and a significant increases ($p \leq 0.05$) in neutrophil in the T.G. compared with the F.G. and the S.G. in males of rabbits (table 5).

Table (5): Effect of the drug in W.B.C. and platelet count of male rabbits.(n=6) (M ± SE)

The parameter / The group	Total W.B.C $\times 10^3/mm^3$	Lymphocyte (%)	Neutrophil (%)	Platelet $\times 10^3/mm^3$
F.G. (1ml N.S.)	**3.88** ±0.24 [a]	**59.88** ±0.94 [a]	**29.15** ±1.94 [a]	**163.50** ±8.40 [a]
S.G. (5mg/kg/B.W.)	**6.08** ± 0.44 [b]	**56.33** ±1.66 [a]	**29.03** ±1.31 [a]	**189.83** ±6.15 [b]
T.G. (10mg/kg/B.W.)	**7.30** ± 0.28 [c]	**49.83** ± 0.29 [b]	**39.2** ± 1.00 [b]	**256.00** ±10 .63[c]

The different in letters refer to the significant differences between groups.

In females of the rabbits (table 6), there is a significant increase ($p \leq 0.05$) in the total count of W.B.C., Lymphocyte rate and platelet count and a significant decrease in neutrophil rate in the T.G. compared with the F.G. and the S.G.

Table (6): Effect of the drug in W.B.C and platelet count of the female rabbit.(n=6) (M ± SE)

The parameters / The group	Total W.B.C ($\times10^3/mm^3$)	Lymphocyte (%)	Neutrophil (%)	Platelet ($\times10^9/L$)
F.G. (1ml N.S.)	**3.91** ± 0.16 [a]	**49.71** ± 0.26 [a]	**42.21** ± 2.22 [a]	**141.66** ±9.70 [a]
S.G. (5mg/kg/B.W.)	**3.95** ± 0.20 [a]	**49.90** ± 1.83 [a]	**38.58** ± 1.73 [a]	**159.83** ±4.07 [a]
T.G. (10mg/kg/B.W.)	**7.91** ± 0.14 [b]	**58.45** ± 1.78 [b]	**34.25** ± 0.99 [b]	**237.00** ±6.86 [b]

The different in letters refers to the significant differences between groups.

3-4: Effect of the drug in the liver functions of Rabbit.

The results in table 7 appear a significant increase ($p\leq0.05$) in levels of liver enzymes GOT, GPT and ALP of the male rabbits in the T.G. and S.G. compared with F.G., in addition to a significant increase ($p\leq0.05$) in Levels of GPT and ALP in T.G. compared with S.G.

Table (7): Effect of the drug in the liver functions of the male rabbits. (n=6) (M ± SE)

The parameters / The group	G.O.T (IU/L)	G.P.T (IU/L)	A.L.P U/L
F.G. (1ml N.S.)	**16.33** ± 0.42 [a]	**9.16** ± 0.30 [a]	**39.66** ± 0.66 [a]
S.G. (5mg/kg/B.W.)	**19.83** ± 0.60 [b]	**12.50** ±0.4 [b]	**47.83** ± 1.04 [b]
T.G. (10mg/kg/B.W.)	**20.00** ± 0.51 [b]	**15.83** ±0 .60 [c]	**75.16** ± 1.32 [c]

The different in letters refer to the significant differences between groups.

Behind that in female rabbits the results (table 8) showed a significant increase ($p\leq0.05$) in levels of the liver enzymes GPT and ALP in the T.G. compared with the F.G. and the S.G.

Table (8): effect of drug in liver functions of rabbit female.(n=6) (M ± SE)

The parameters / The group	G.O.T (IU/L)	G.P.T (IU/L)	A.L.P U/L
F.G. (1ml N.S.)	**16.23** ±0.42 [a]	**9.75** ±0.30 [a]	**74.33** ±1.25 [a]
S.G.	**17.66** ±0.71 [a]	**10.25** ± 0.44 [a]	**79.00** ± 1.15 [a]

(5mg/kg/B.W.)			
T.G. (10mg/kg/B.W.)	**17.33** ±0.42 [a]	**15.16** ± 0.47 [b]	**93.33** ±2.99 [b]

The different in letters refer to the significant differences between groups.

3-5:Effect of the drug in kidney function of Rabbits.

Observed from the results, a significant increase ($p \leq 0.05$) in the concentration of urea and creatinine of the male rabbits in the T.G. compared with the F.G. and the S.G. and a significant increase ($p \leq 0.05$) in the concentration of urea in the S.G. compared with the F.G.(table 9).

Table (9): Effect of the drug in kidney functions of male rabbits .(n=6) (M ± SE)

The parameters / The group	Urea gm/dl	Creatinine gm/dl
F.G. (1ml N.S.)	**34.00** ±0.81 [a]	**0.90** ±0.05 [a]
S.G. (5mg/kg/B.W.)	**41.66** ±1.42 [b]	**0.96** ±0.04 [a]
T.G. (10mg/kg/B.W.)	**57.00** ±0.85 [c]	**1.16** ± 0.04 [b]

The different in letters refer to the significant differences between groups.

In female rabbits, a significant increase ($p \leq 0.05$) was observed in the concentration of urea in the T.G. compared with the F.G. and the S.G. as well as in the S.G. compared with the F.G.(table 10)

Table (10): effect of drug in kidney functions of the female rabbit.(n=6) (M ± SE)

The parameters / The group	Urea gm/dl	Creatinine gm/dl
F.G. (1ml N.S.)	**36.33** ±0.76 [a]	**0.95** ±0.04 [a]
S.G. (5mg/kg/B.W.)	**41.66** ±1.22 [b]	**0.93** ±0.03 [a]
T.G. (10mg/kg/B.W.)	**50.66** ±0.66 [c]	**1.03** ±0.04 [a]

The different in letters refer to the significant differences between groups.

3-6: Effect of the drug in the glucose. total protein and bilirubin concentration of rabbits.

Results of the current study (table 11) showed a significant increase ($p \leq 0.05$) in glucose concentration in the T.G. compared with the F.G. and the S.G. as well as in the S.G. compared with the F.G.As the results showed a significant increase($p \leq 0.05$) in the total protein concentration in the T.G compared with the F.G. also a significant increase in bilirubin concentration in the T.G.compared with the F.G.and S.G

Table (11): effect of drug in glucose and total serum protein concentration of the male rabbit.(n=6) (M ± SE)

The parameters / The groups	Glucose (gm/dl)	Total serum protein (gm/dl)	Bilirubine (gm/dl)
F.G. (1ml N.S.)	**103.83** ±3.83 [a]	**0.17** ±0.02 [a]	**0.34** ±0.012 [a]
S.G. (5mg/kg/B.W.)	**125.33** ±4.08 [b]	**0.19** ±0.02 [ab]	**0.38** ±0.019 [a]
T.G. (10mg/kg/B.W.)	**228.00** ±9.08 [c]	**0.25** ±0.02 [b]	**0.61** ±0.023 [b]

The different in the letters refer to the significant differences between groups.

In females rabbits (table 12),the results showed a significant increase ($p \leq 0.05$) in glucose concentration in the T.G. compared with the F.G. and the S.G. and in the S.G. compared with the F.G. On the other hand, there was a significant decreased in the total protein and increase in bilirubin concentration in the T.G. compared with the F.G. and S.G.

Table (12): Effect of the drug in glucose and total serum protein concentration of rabbit female.(n=6) (M ± SE) .

The parameters / The groups	Glucose gm/dl	Total protein gm/dl	Bilirubin (gm/dl)
F.G. (1ml N.S.)	**127.33** ±1.81 [a]	**0.39** ±0.03 [a]	**0.29** ±.02 [a]
S.G. (5mg/kg/B.W.)	**156.16** ±4.67 [b]	**0.35** ±0.04 [a]	**0.33** ±.02 [a]
T.G.	**178.33** ±3.61 [c]	**0.28** ±0.17 [b]	**0.52** ±.01 [b]

(10mg/kg/B.W.)			

The different of the letters refer to the significant differences between groups.

4- Discussion :

4-1- Effect of the drug in the body weight.

As mentioned previously that drug the face of the moon is made by of a number of components for that reason the drug may effects by it all or by one of its components .

The results of the current study showed variation in the weights of the experimental animals during the trial period , But there were no significant differences in animal weights in the last day of the experiment these differences may be due to the effect of the drug at the level of metabolism that has been indicated by many research that the use of Cyproheptadine and dexamethasone cause overweight and obesity and Najib *et al.*(2014) showed that the Cyproheptadine cause increasing in the body mass , as Hu *et al.*(2006) and Zhang *et al.* (2004) pointed that the dexamethasone causes increasing in rats body weight , this results disagree with Aimée *et al.*(2016) who explained that the misuse of Cyproheptadine only and with dexamethasone cause overweight and obesity, While Rooman *et al.*(1999) showed that the used of dexamethasone caused decreased in the body weight , spleen , kidney and thymus gland and increased in liver weight rate.

4-2:Effect of the drug in the blood parameters of Rabbits.

Results of the present study showed a significant decreasing in R.B.C. count , hemoglobin concentration and P.C.V. rate. Reduced count of R.B.C. may be caused by the effect of the drug or one of its components in the bone marrow site where the production of these cell or in the kidney which represent the site of erythropoietin secretion the catalyst for bone marrow on the production of R.B.C. followed by a decrease in the hemoglobin concentration and P.C.V. rate. On the other hand, the results showed a significant increase in W.B.C. count ,the increase of the total count of W.B.C. is probably a the responsible for treated with dexamethasone contained within the composition of drug , Ismail et al.(2003) who explained that the dexamethasone causes an

increase in total count of W.B.C. and decrease in lymphocyte and monocyte .

as may be the increasing due to the effect of dexamethasone in apoptosis of neutrophil , which results on it high count in the blood stream is reflected on the total count of W.B.C. (Ching *et al*.1999 ;Liles *et al.*,1995) in addition to that Bourchier and Weston (1991) explained that the dexamethasone causes increase in count of immature neutrophil and platelet count in the blood, and Aengwanich (2007) showed that the dexamethasone causes increasing in the total numbers of W.B.C. and neutrophil and decrease in lymphocyte ,hemoglobin and the body weight .the results disagree with Ohkarur *et al*.(2010) Who described that the dexamethasone causes reduction in the W.B.C. number , lymphocyte , monocyte , eosinophil and basophil and increased in neutrophil.

4-3: Effect of the drug in liver functions of Rabbit.

The results of present study showed a significant increasing in level of the liver enzymes in the experimental animals which treated with the drug, the level of liver enzymes indicates at the ability of the liver to do functions, so that the height of these enzymes revealed to effect of the drug in the liver, so the increase in enzymes level may be due to the effect of drug in the liver tissue, where Cyproheptadine (within structure of drug) causes acute failure and expansion in liver , jaundice, increase in level of liver enzymes, morphological , biochemical changes in the hepatic cell and veins hepatics abnormalities for reasons unknown as side effect from Cyproheptadine use but it is believed that the cyproheptadine like structure some drugs (phenothiazing hepatotoxic) as ajmaline , chloropromazine and imipramine (Chertoff *et al*.,2014) and it caused hepatic toxicity after weeks of use in addition to injury of hepatic cell and increase in level of the liver enzymes (filler *et al*., 2014).

4-4: Effect of the drug in the glucose. total protein and bilirubin concentration of rabbit.

The results of this study showed a significant increasing in blood glucose concentration in the animals which treated with drug in both sexes, the drug or one of its components on production and secretion of insulin which regulated concentration of blood glucose may be the reason of this increasing, Belinda and Lawrence (2004) and Chow *et al*.(1990)

revealed that the Cyproheptadine and dexamethasone caused inhibition in production of insulin by effecting the transcription and translation in beta cell and morphological and biochemical changes in B-cell which caused decrease in production of insulin , this is in line with Donatsch *et al*.(1980) who showed that the Cyproheptadine caused inhibition of insulin production by inhibition of depolarization in B-cell of pancreas and Miller and Fischer (1990) who explained that Cyproheptadine caused B-cell toxicity and decreased in production of insulin and increasing in the concentration of blood glucose in addition to that , Aimee *et al*.(2016) revealed that the long use of Cyproheptadine causes hyperglycemia , As of John *et al*. (2008) they showed that the dexamethasone, which found in drug structure, cause increasing of insulin resistance in the body cell which cause high concentration of blood , As pointed in Lukins and Manninen (2005) and Pasternak *et al*.(2004) that the dexamethasone cause increased in blood sugar even it used in a single dose for people without diabetes mellitus , in the same context said Dhatariya (2013) and hans *et al*.(2006) said that , the dexamethasone caused hyperglycemia by the direct effect in cell of pancreas , while Kikkawa , *et al*.(1981) revealed that the direct effect of Cyproheptadine in B-cell caused decreasing in secretion of insulin and increasing in concentration of glucose, on the other hand Sharon *et al*.(2009) showed that the dexamethasone causes increasing in secretion of epinephrine and norepinephrine from medulla of adrenal gland which caused increasing in Glycogenolysis and concentration of glucose.

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