



ROLE OF MELATONIN HORMONE TREATMENTS FOR REPRODUCTIVE IMPROVEMENT IN ANESTRUS LACTATING IRAQI GOATS

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Abstract

This study was conducted on (60-90 days postpartum) in Al-Qassim district/ Babylon province from April to August: 2019; aged between 2-4 years divided randomly into three equal groups (10 does in each one) according to the type of treatment, G₁ treated with 18mg/doe of melatonin s/c for 30 days but G₂ treated with 36 mg /doe for 30 days also and both groups isolated from buck during this period. but G₃ represented control group without treatment. The results showed the animals response were recorded 80%,70%,40% in G₁,G₂,G₃ respectively with duration of response recorded 5.36±1.23days, 5.76±1.14days and 5.13±9.12 days in G₁,G₂ andG₃ respectively with significantly differences (p<0.01) for treated groups compared with control group. The pregnancy rate recorded superior significantly (p<0.01) in treated groups also as well as the twinning rate was recorded 25% and 29% in treated groups (G₁,G₂) compared with control group without twin parturition. In conclusions the use of melatonin was very effective for improvement of reproductive parameters include fertility, pregnancy and twinning rate.

Key words : Iraqi goats, anestrus, pregnancy, melatonin.

Introduction

Goats and sheep showed anorulatory and anestrus under normal variations of day length especially in months characterized by long light days represented by end of winter to mid-summer (Chemineau *et al.*, 1988; Abecia *et al.*, 2019). Control of the activation of sexuality by using light technique in both sexes and these light treatments in spite of efferent to induction of reproduction but required to intensive management and expensive light pro of buildings (Karsch *et al.*, 1984; Ortavant *et al.*, 1985; Forcada and Abecia, 2006). While the recent studies include many hormonal protocols to reduce the anestrus periods which continuously from 4-8 months and author reported about of period and using many hormones include progesterone as sponges, injections on mixed with food intake as well as PMSG or HCG (Chawla and Bhatanger, 1984; Dhindsa *et al.*, 1991; Groyling and Van Niekork, 2009) many studies lead to melatonin was

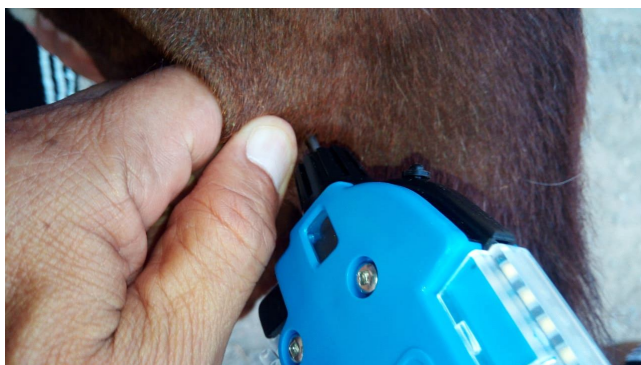
used to the advance the breeding season in highly seasonally for increased the fertility rats and letter size (Arthur *et al.*, 2009; Taplur *et al.*, 2018) due to the melatonin is a natural hormone synthesized in the Pinal glands and regulated by day – night perception and die fates seasonally rhythms in reproduction (Forcada *et al.*, 2007; Abeca *et al.*, 2011; He *et al.*, 2016; Casson *et al.*, 2018). The purpose of this study to evaluate the effects of melatonin to induced fertile estrous in local Iraqi goats out season reduce the seasonal anestrus.

Materials and Methods

This study was performed on 30 anestrus lactating Iraqi local goats during 60-90 days postpartum in Al-qassim district/ Babylon province during the period from April to August 2019, aged between 2- 4 years, divided randomly into three equal groups (10 does of each one) according to the kind of hormonal regime treatment, 1st group (G₁) treated with 18 mg / doe of melatonin implant

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S/C for 30 days with isolate completely from Bucks, 2nd group (G₂) treated with 36 mg/doe of melatonin implant S/C for 30 days (isolate from Bucks) but the 3rd group (G₃) represented control group (without treatment). Animal response, duration of response, pregnancy rate as well as type of parturition viability of fetus have been studied. A analysis of data include mean, standard error, chi- square and F. test according to (Steel and Torrie, 1986). The figure show melatonin implant placement.



The figure show melatonin implant placement.

Results and Discussion

The results released in table 1 were recorded the animal response represented by 80% (8/10), 70% (7/10) and 40% (4/10) in G₁, G₂ and G₃ respectively with significantly difference ($p < 0.01$) related with G₁ and G₂ compared with G₃ and these finding agreed with (11 and 14) which recorded % by using melatonin implants, but the duration of response was 5.36 ± 1.23 days, 5.76 ± 1.14 and 58.13 ± 9.12 in G₁, G₂ and G₃ respectively with significant differences ($p < 0.01$) for G₁ and G₂ compared with control group (G₃) and these results supported by many authors (1, 13 and 14). While the results in table 2 showed the pregnancy rate which recorded 80%, 70%, 40% in the G₁, G₂ and G₃ respectively with significantly superior inn treated groups compared with control group and these finding agreed with (10, 11 and 14). Finally the type of parturition was recorded twinning rate 25% 29.5% in G₁ and G₂ compared with G₃ without twin parturition. These findings founded by many researchers (7, 8 and 10), while the viability of kids was recorded 1/10(10%) and 1/8(11.2%) in G₁ and G₂ compared with G₃ not recorded dead fetus and these results agreed with (5, 7 and 13). These results in this study using melatonin lead to improve the reproductive performance in many parameters such as reduction of days open, pregnancy rate and twinning rate.

Table 1: Type of treatment, animal response and duration of response by using melatonin in lactating Iraqi local goats.

Groups	Number of animals	Type of treatment	Animals respons		Duration of response M±SE(days)
			No.	%	
G ₁	10	Melatonin implant 18mg/s.c(one implants)	8	80 a	5.36±1.23 A
G ₂	10	Melatonin implant 36mg/s.c (two implants)	7	70 b	5.76±1.14 A
G ₃	10	Without treatment	7	40	58.13±9.12 B
Total	30	-----	15/20	75	-----
			4/10	40%	

Different small letters mean significant differences ($p < 0.01$) between groups.

Table 2: Pregnancy rate, type of parturition and viability of kids in lactating Iraqi local goats.

Groups	Animal response	Pregnancy rate		Type of parturition		Viability of kids	
		No.	%	Single	Twine	Live	Died
G ₁	8/10	8	80%	6	2%	9	1
			a	75%	25%	90%	10%
G ₂	7/10	7	70%	5	2	8	1
			a	71.5	29.5	88.8%	11.2%
G ₃	4/10	4	40%	4	zero	4	---
			b	100%		100%	---
Total		15/30		11/15	4/15	17/19	2/19

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