spectrum of antiparasetic activity (Yazwinski et. al. 1994, Shoop et. al. 1995 and Schench and Lagman 1999) . Along with increasing use of these drugs in animals , a growing number of litertures have been emphasized the risk of side effects (Hsu et. al. 2001) . On the other hand, several studies referred to the effect of ivermectin group on male fertility (Ghoniem and Mansour 1992 , Zaied 1995 and Emam and Abd-Alla 2000) .

Abamectin pharmacokinetics are strongly influenced by formulation , rout of administration , species and sex (Ronacalli 1987 and Echeverria et. al. 2001) . Abamectin (evermectin B_1) occur as a natural product of soil actinomycete sterptomyces avermitilis (Shoop et. al. 1995) . It is used in treatment of gastrointestinal and external parasite (Meaus et. al. 1997) .Donmactin pharmacokinetics in goats were studied by subcutaneous or intramuscular route . Several studies referred to efficacy of doramectin against cattle gastrointestinal nematods (Yazwinski et. al.1994 , Hendrick et. al. 1995 and Veer et.al. 2001) .

The harmful effect of chemical and drugs on spermatogenesis is considered one of the main causes of disturbance of the reproductive function of males (Emam and Abd-Alla 2000). These directed the aim of the present study to evaluate the effect of abamecitn and on adult bull semèn as well as on some blood constituntes.

MATERIALS AND METHODS

1- Drugs

- Abamectin (Genesis)®. An care New Zealand Ltd.
- Dormectin (Dectomax)®. Phizer, Egypt.

1- Animals.

Nine apparently healthy crossbred bulls, 5 years old and about 450-500 kg body weight, from a private farm in Kalyobia Governorate, were used in this investigation.. Bulls were randomly divided into three equal groups. The first group was left without treatment as control. The second and third groups were subcutaneously injected with two therapeutic doses with 30 days apart of abamectin and doramectin (0.2 mg/kg b. w.) respectively, semen samples and blood samples were collected after 30 , 60 and 90 days of the treatment .

3. Semen Collection

Semen collection was carried out in the morning by means of artificial vagina, used a teaser bull for mounting . The temperature of the artificial vagina ranged between 42-
habit of each bull . After teasing, one ejaculate was collected at 30 , 60 and 90 days post treatment. Semen volume of the ejaculate was measured, seman picture including volume, motilities, concentration, live and dead sperm, and sperm abnormalities were evaluated according to Sansone et al., (2000)

4. Blood Samples

Blood samples were collected from Jugular vein at 30 , 60 and 90 days post injection and centrifugated for 10 minutes at 3000 r. p. m. to obtain clear serum. Assessment of testosterone concentration was performed by Jaffe and Behrman, (1974) using coat-A- count 1 ^{125} radia imunoassay Serum testosterone hormone was determined by radioimunoassay kits purchased frome Diagnostic Products Corporation, Los Anglos, Californnia, 90045, U.S.A. The following estimations were carried out colorimetrically, total proteins (Doumas 1975), transaminase enzymes, ALT α AST, (Reitman and Franke 1957), alkaline phosphatase enzymes, ALP, (Kind and King 1954), urea (Fawcett and Scoot 1960), and creatinine (Husdan and Raporpot 1968)

5. Statistical analysis

The obtained results were tabulated and statisticaly analyzed according to Snedecor and Cochran (1973) .

RESULTS

The effect of studied antiparasitic drugs abamectin and doramectin) on sperm characters was recorded in table (1). After 30 and 60 days post treatments, the sperm cell concentration, progressive motility and alive sperm percentages were significantly decreased , while total sperm abnormalities was significantly increased. Semen volume was not affected.

Abamectin and doramectin in therapeutic doses decreased significantly serum testosterone level , serum total protein and increased significantly the serum levels of ALT , AST , ALP , urea and creatinine at 30 and 60 days post-injection (Table 2). All studied parameters were returned to normal levels after 90 days from drug injection.

DISCUSSION

The popular therapeutic dose of abamectin and doramectin have an adverse effect on crossbred bull semen at 30 and 60 days post injection (Table 1). Sperm cell concentration, percentages of sperm motility and livability were significantly decreased . However, sperm abnormalities were significantly increased. These results are in accordance with those reported by Abd El-Malak et. Al. (1999) and Tanyidizl and Bozkurt (2002) after ivermectin injection in sheep. In rabbit, Ghoniem and Mansour (1992) . used the therapeutic dose of ivermectin and found decrease in sperm cell concentration, sperm motility with increased sperm abnormality. The recorded decrease in sperm characters in crossbred bull treated with abamectin and doramectin might be affected through spermatogenesis. These results supported those of Alexandr (1978) who reported a reduction in the number of sperms, and their motility due to inhibition of both spermatogenesis and sperm maturation . Shehata (1995) observed that ivermectin resulted in congestion and odema of testes with necrosis of spermatogenic cells, epididyms and seminal vesicles in rabbit . Bedford (1975) and Orgebin-Crist et. al. (1976) reported that the composition of epididymal fluids plays a role in sperm maturation and storage. Zaied (1995) mentioned that the deleterious effects induced by ivermectin on male reproductive function were attributed to the decrease in serum levels of L.H. , FSH and testosterone hormone. Weseauer (1995) found that ivermectin at dose 0.3 mg /kg b.wt. could induce deterioration in various semen properties in boars.

In the present study abamectin and doramectin induced non significant effect on semen volume . These data were compatible with those reported by Schroder et. al. (1986) who stated that administration of ivermectin subcutaneously to ram had no effect on semen volume . Wrona and Krzyzanowki (1995) found that ivermectin have no effect on semen volume in boars .

In the present work, subcutaneous injection of therapeutic dose of abamectin and doramectin induced significant decrease in testosterone level at 30 and 60 days after administration . The decreased serum testosterone level in treated crossbred bull might be attributed to the depressant effect on testosterone production by leydig cells . These effects were transient and disappeared after 90 days of the experiment and the animal

restored its reproductive function . The obtained results were agreed with these reported by Jacob et. al. (1983) , Zaied (1995) and Emam and Abd Alla (2000) in rabbits. Jacob et. al. (1983) found that testicular fat retained high concentration of ivermectin . This ensures persistent harmful effect on the reproductive function, which might be present as long as its residue in the tissue .

The obtained results revealed significant decrease in total protein at 30 and 60 days post injection of abamectin or doramectin . The significant decrease in total protein was closely resemble to that recorded by Ghoniem and Mansour (1992) and Emam and Abd Alla (2000). They recorded that a lower in serum total protein treated with ivermectin in rabbit . Selim (1996) found that moxidectin at a dose rate of 0.2 mg/kg b.w. significantly lowered the serum total protein in treated cattle . Hypoproteinaemia may be due to the destructive and toxic effect of ivermectin on the hepatocytes and renal epithelium (Anderson et. al. 1977, Ali et. al, 1988).

In the current study, it was found that crossbred bulls injected abamectin and doramectin showed significant increase in the transaminase enzymes (ALT and AST) and ALP enzyme after 30 and 60 days of treatment. This result was consistent with those reported by Ali. et. al. (1988), Ghoniem and Mansour (1992) and Emam and Abd Alla (2000) . It is considered that ivermectin and moxidectin may have a harmful effect on the hepatic cells (Turner and Sherlock 1964 , Coles 1974) but for a certain period up to 60 days after injection. At 90 days post-treatment, the liver restored its function and the enzymes levels returned normal . However, Slantna et. al. (1989) found that liver contained the highest and most persistent residues of ivermectin . Our result agree with Aman et. al. (2000) who found that ivermectin injection induced significant increase in SGOT and SGPT .

Our results, demonstrated both abamectin and doramectin affected the renal function during their excretion from the body. Serum urea and creatinine levels were significantly increased after 30 and 60 days, then, returned to their normal level 90 days after injection. Same result were recorded by Emam and Abd Alla (2000) who found ivermectin and moxidectin in therapeutic dose induce significant increase in urea and creatinine. Shehata (1995) recorded that ivermectin at a dose rate of 0.2 mg/kg b. w. induce

some degenerative changes of the tubular epithelium, glomerular capsular odema and interstitial nephritis .

In conclusion, the toxic effects of abamectin and doramectin on the reproductive status, liver and kidney functions were transient. The treated animals required not less than 3 months after injection to regain their normality .

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EFFECT OF ABAMECTIN AND DORAMECTIN ON SEMEN AND SOME BIOCHEMICAL PARAMETERS IN CROSSBRED BULLS

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SUMMARY

An experiment was conducted to evaluate the effect of therapeutic dose (0.2 mg/kg b. wt.) of either abamectin and doramectin injection (antiparasitic drugs) to crossbred bulls in two doses with 30 days apart on sperm characteristics, serum testosterone level and some blood biochemical constituent. Nine apparently healthy adult crossbred bulls were randomly divided into three groups. The first group was kept untreated (control) , the second received abamectin and the third received doramectin . Semen and blood serum samples were collected at 30, 60 and 90 days after treatment .

Treatments had an adverse effect on semen of bulls at 30 and 60 days post-injection. There were significant decreases in sperm cells concentration ,percentages of progressive motility, live sperm, and serum testosterone levels. Semen volume not affected, while total sperm abnormalities (percentage) was significant increased. Moreover, significant decrease in serum total protein, with significant rise in serum levels of transaminase enzyme (ALT and AST), ALP,urea and creatinine were noticed at 30 and 60 days of treatments .

The induced hazard effect by the tested drugs on these parameters were reversible as the studied criteria returned to normal values after 90 days of the treatment.

INTRODUCTION

Abamectin and doramectin are broad spectrum drugs widely used on control of internal and external parasites (Jones et. al. 1993) . Abamectin and Doramectin have been introduced as new members of evermectins family . These products are macrocyclic lactones derived from soil dwelling actinomycetes spp. with broad

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Table (1) : Effect of therapeutic dose of abamectin and doramectin on semen volume and characters at 30 , 60 and 90 days post treatment in crossbred cow bull (n=3 per each group) .

Period	30 days			60 days			90 days		
Parameters	Control	Ab	Dor.	Control	Ab	Dor.	Control	Ab	Dor.
Semen volume		0.58	3	37	38		8	16	7
Sperm conc.10^6 Spz/ml	0.11	07**	09*	09	0.16*	08*	1	13	6
Motility %	8 .09	2.25**	2.75*	1.42	61.23 **	1.73*	36	2.76	93
Live sperm %	.93	71.11 *	1.8*	1.75	69.56 *	3.2		93	6
Primary abnormality %	3	0.73**	86*	92	0.39*	42*	45	6	3
Secondary abnormality %	.62	0.74**	0.55*	79	16.12 *	67*	96	0.62	78

* P < 0.05 ** P < 0.001

Table (2) : Effect of therapeutic dose of abamectin and doramectin on testosterone hormone and some biochemical parameters at 30 , 60 and 90 days post treatment in crossbred bull (n=3 per each group) .

Period / Parameters	30 days			60 days			90 days		
	Control	Ab	Dor.	Control	Ab	Dor.	Control	Ab	Dor.
Testosterone (ng/ml)	09	62*	3*	2	5*	*			
T.P. (gm/dl)	61	1**	42*	3	*				
ALT (I.U/l)	10.9 1.6	05*	76*	91	19*	3		5	
AST(I.U/l)	91	13**	82*	63	31*	6		6	6
ALP (U/100 ml)	73	1.03**	68*		3*				
Urea (mg/dl)	2.12	3.96*	12*	09	31*	*	1	1	2
Creatinine (mg/dl)	09	38*	9*	2	9*	36			

* P < 0.05 ** P < 0.001

الملخص العربى

تأثير عقاري الأبامكتين و الدورامكتين على المنى و بعض القياسات الكيميائية للطلائق البقري الخليط

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أجرى هذا البحث لدراسة تأثير عقاري الأبامكتين و الدورامكتين الذي يتم استخدامهما لمقاومة الطفيليات الداخلية والخارجية على مواصفات المنى و بعض القياسات الكيميائية لمصل الطلائق البقري الخليط .

و قد أظهرت النتائج أن العقارين أديا إلى نقص معنوي في تركيز الحيوانات المنوية ومعدل الحركة وعدد الحيوانات المنوية الحية كما أديا إلى زيادة نسبة العيوب الشكلية في الحيوانات المنوية الحية بينما لم يظهرا أي تأثير على حجم السائل المنوي .

ولوحظ أيضا نقص معنوي في معدل هرمون التستيسترون و البروتين الكلي وزيادة معنوية في معدل كل من الترانس امينيزس و الفوسفاتيز القاعدي و اليوريا و الكرياتينين في مصل الدم عند 30 ، 60 يوما من حقن العقارين .

لذلك ينصح بعدم استخدام هذين العقارين في فترة الإنتاج حتى لا تصاب الطلائق البقري بنقص في الخصوبة .

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