قسم : أمراض الدواجن
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دراسات عن فعالية الايفرمكتين فى علاج الطفيليات الخارجية والديدان الأسطوانية فى الدجاج

١ ـ اختبار أمان العقار للدجـــاج

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تم أعطاء جرعات متزايدة من الايفرمكتين بمعدل ١٠٠ ميكروجرام وحتى ١٥ مجم لكل كيلو جرام وزن حىالى مجاميع من الدجاج فأثبتت كافة الجرعات أنها غـــير سامة ولم تسبب أى أعراض غريبة أو نفوق فى الدجاج .

هذا ولم تظهر الدراسات الفارماكولوجية أى آثار غريبة أو تأثير ضار على الأنسجة المختلفة فى جسم الفار والفأر الأبيض .

ولم يظهر كذلك أى أثر ضار لجرعات ٢٠٠ ، ٤٠٠ ، ٨٠٠ ميكروجرام /كجـــم وزن حىعلى أنتاج البيض كما ونوعا سواء فى المواصفات الخارجية أو الداخلية كذلـــك لم يظهر الدواء أى أثر ضار على نسب الخصوبة والتفريخ

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INVESTIGATIONS ON THE EFFICACY OF IVERMECTINE FOR ECTOPARASITES AND NEMATODES IN CHICKENS
I- Testing for drug safety to chickens
(With 3 Tables)

By
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(Received at 29/10/1985)

SUMMARY

Doses of 100 ug up to 15 mg ivermectine/kg b.w. were given to groups of chicken and prooved to be non toxic and caused no abnormal signs or mortality. The pharmacological evaluation revealed a non significant changes in the physiological functions of different systems in rats and mice. Doses of 200, 400&800 ug/kg b.w. had no effect on egg production, the quality of eggs remained unchanged externally and internally. The drug had no deleterious effect on fertility and hatchability rates.

INTRODUCTION

Ectoparasites and nematodes have caused serious and enormous losses to the poultry industry particularly in tropical and subtropical countries (HOFSTAD, 1978).

To search for a safe parasiticide with a broad spectrum of effectiveness has been pursued by many investigators. Recent reports, citing effective control of external parasites and nematodes obtained with ivermectine in cattle, sheep, and pigs (EGERTON, et al. 1980; BARTH & SUTHERLAND, 1980) and LEE, et al. 1980) pointing for a need of further investigation on this promising compound in poultry.

The present report was designed to determine the safety factor for chickens treated with ivermectine and to study the effect of this drug on egg and meat production, fertility and hatchability rates.

MATERIAL and METHODS

Ivermectine:

It is known as MK- 933 or 22, 23 dihydroavermectine B_1 ; Merck, sharp and Dohme) was supplied in a formulation containing the drug in aconcentration of 10 mg/ml.

Prelimenery experiments:

A) Doses of 0.1, 0.2, 0.4, 0.8, 1, 2, 4, 8 and 15 mg/kg. b.w. of ivermectine were given per os to groups of five commercial Hubbard chicks at 28 days of age. Non treated group served as a control. Feed and water were given ad libitum. Body weight, and mortality were calculated weekly for 3 weeks post-treatment (P.T.).

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B) Routine basic pharmacological evaluation was done to evaluate the safety of ivermectine. Therapeutic index and pharmacodynamic effects were demonstrated using differnet doses of ivermectine in rats and mice.

Experiment I:

A total of 320 30-week-old lohman selected leghorn chickens were randomly divided into 4 equal groups (A, B, C & D).

Each group was housed in a separate battery with raised wire floors. Feed and water were supplied ad libitum. Doses of 200, 400 & 800 ug/kg. b.w. of ivermectine were given orally to birds of group A, B & C respectively, while birds of group D served as non treated control. Eggs were collected twice daily, recorded for 3 weeks P.T., random samples were examined for any internal physical changes.

Experiment II:

This was conducted as a field study to determine possible effect of ivermectine on fertility and hatchability rates. A total of 450 female and 50 male 8- months old Fayoumi chickens at El Waady El Gadeed breeder farm were given a single oral dose of 400 ug/kg. b.w. of ivermectine. Eggs were collected twice daily and stored for one week before incubation. The rest of the form 4500 female and 500 male served as non treated controls. Data were recorded for 3 weeks P.T.

RESULTS

Results of prelimenary experiments are given in Table 1. Birds remained healthy allover the observation period and no abnormal signs were observed. The basic pharmacological evaluation of ivermectine revealed a non significant changes in the physiological functions of different systems in rats and mice. By large doses of the drug, no mortality was noticed in experimental animals. However, therapeutic index could not be calculated.

Table (1)
Body weight of chicken given various doses of ivermectine

Ivermectine mg/kg. b.w.	Body weight (gm) x			
	at treatmetn	1 week P.T.	2 weeks P.T.	3 weeks P.T.
0.1	850	1150	1500	1820
0.2	880	1130	1480	1800
0.4	830	1150	1500	1810
0.8	850	1100	1510	1830
1	870	1150	1470	1840
2	880	1140	1490	1830
4	860	1130	1500	1820
8	860	1150	1480	1810
15	870	1140	1500	1820
0	860	1140	1480	1830

x = geometric mean.

Results of experiment II are shown in table 2.

Table (2)
Egg production and egg quality of hens given various doses of ivermectine

Ivermectine ug/kg. b.w.	Egg production % hen-day	Egg weight (g)	Specific gravity
200 "A"	80.4	62.2	1.0826
400 "B"	80.2	62.4	1.0830
800 "C"	80.6	62.0	1.0828
0 "D"	80.4	62.2	1.0828

Results of fertility and hatchability rates are illustrated in Table 3.

Table (3)
Fertility and hatchability rates of hens given 400 ug/kg. b.w. of ivermectine

Chickens	Fertility			Hatchability		
	1, week P.T.	2, week P.T.	3, week P.T.	1, week P.T.	2, week P.T.	3, week P.T.
Treated 400 ug/kg. b.w.	92.9	92.4	92.0	83	83.3	82.6
Control	92.0	92.6	92.4	83.2	82.8	81.8

DISCUSSION

Results of preliminary experiments showed that there was no mortality during the three weeks observation in chicken as well as in experimental animals. No significant effect due to treatment on body gain or feed consumption was noticed in any of the treated groups. Therefore, the range of treatment levels tested appeared to be satisfactory for subsequent studies.

The effect of ivermectine on egg production, showed no delitereious effects both quantitatively and qualitatively. Also fertility and hatchability rates were not decreased in the treated groups in comparison with the non treated control groups.

It is concluded from these data that the use of ivermectine in meat or egg production type chickens would result in no deterimental effects on reproductive parameters, body gain or mortality.

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