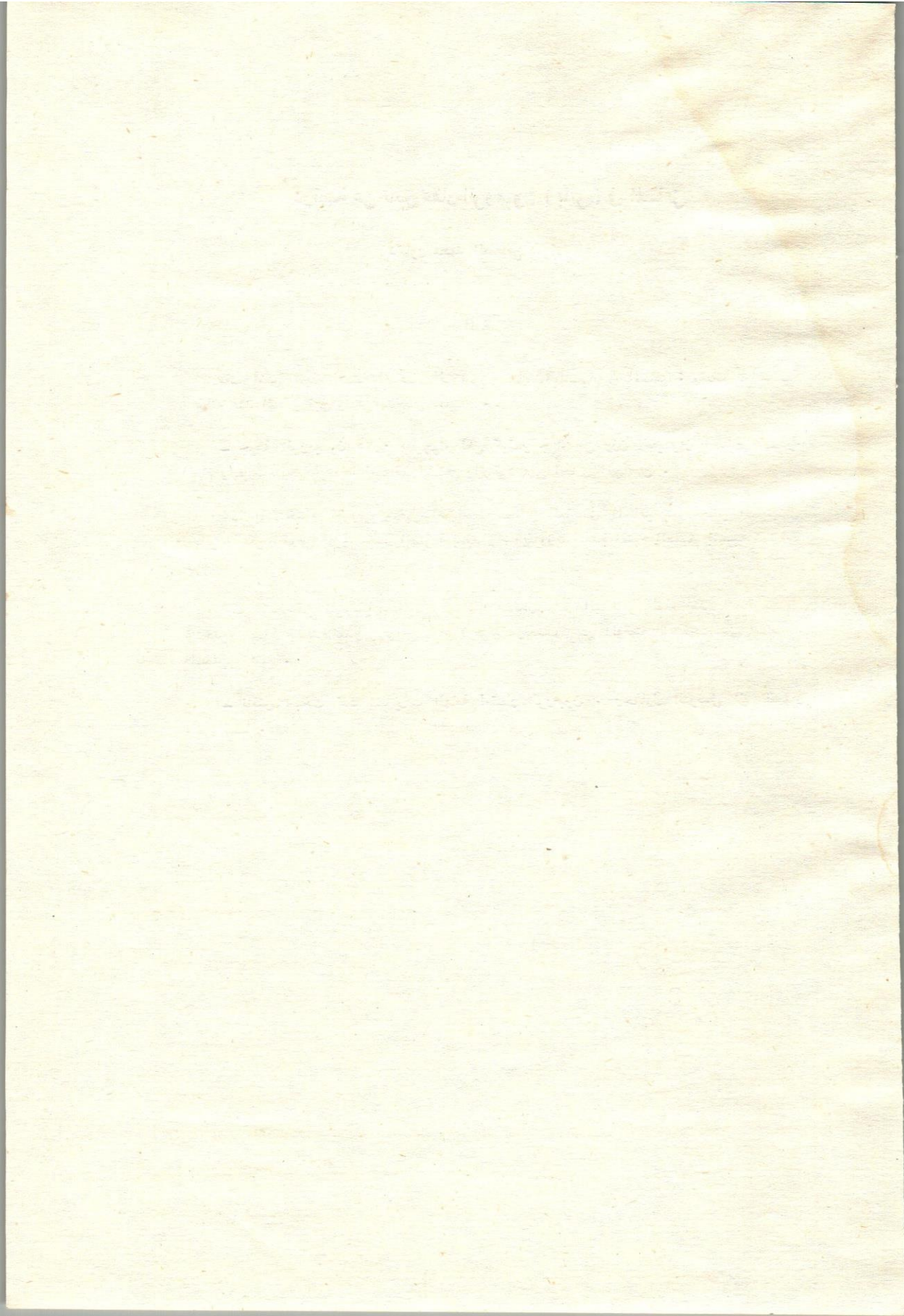


دراسة عن تأثير عقار الرومبون (باير) في الماعز

دكتور محمد المصطفى منزلي

الملخص

- أمكن بنجاح استخدام عقار الرومبون (باير) للتحكم في الماعز ، وتمت دراسة تأثيراته عند الحقن قبل وبعد التخدير العام .
- جرعة الرومبون ٢٥ر٠ ملليجرام لكل كيلو جرام من وزن الحيوان أحدثت الهدوء العام وأبطلت الحركة تماما استلقاء الماعز والرقود على احدي الجانبين .
- باستخدام الرومبون قبل احداث التخدير العام في الماعز بمستحضر البايستينال (باير) أمكن انقاص كمية المخدر المطلوبة بمقدار ٤٠٪ وزيادة مدة النوم العميق بنسبة ٦٦ر٦٪ تقريبا .
- عند حقن الرومبون بعد زوال تأثير المخدر وأثر التخدير العام أمكن اعادة مظاهر التخدير لفترة جديدة تقدر بحوالى ٢١/٣ (مرتين ونصف) من الوقت الأصلي الذي استغرقه التخدير العام .
- ناقش البحث تلك التأثيرات الهامة لعقار الرومبون ، وحاول التوصل الى تفسير علمي لها .



Department of Surgery Faculty of Veterinary Medicine, Assiut University.
Head of Dept. : **Ass. Prof. Dr. M.H. El Guindy**

A PRELIMINARY STUDY ON THE EFFECT OF ROMPUN "BAYER" IN THE GOAT

(with two figures and one table)

By

M. El-M. Monzaly

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SUMMARY

This work was directed to study the usefulness of "Rompun" for restraint, and pre- and postanaesthetic medications in the goat. A dose of 0.25 mg/Kg bwt of Rompun 2% satisfactorily immobilized the goats. In weekly anaesthetization of 12 goats with "Baytenal", premedication with Rompun reduced the required amount of anaesthetic by 40% and increased sleep time — 66.6%. Postanaesthetic medication with Rompun resulted in apparent reanaesthetization which lasted more than 2½ times the original duration of anaesthesia.

INTRODUCTION

Surgical treatment of domestic animals is now a part of every day veterinary practice. The introduction of anaesthetics and tranquilizers; intended specifically for veterinary purposes; has been a major factor in this respect. Preanaesthetic medication aids both the surgeon and the patient, as it makes anaesthesia easier to induce and maintain. At the same time, it renders the procedure safer and more comfortable for the animal.

Rompun — "Bayer" represented a major advance in cattle surgery and practice. The available literature concerning the application of Rompun as a sedative, or as a preanaesthetic medication lacks its effect in goats. Thus, the presented study was directed to explore the possibility of using Rompun for an easy restraint, and pre-and postanaesthetic medications in the goat.

MATERIALS AND METHODS

Twelve apparently healthy native goats of different age, sex and body weights were submitted to the experiment. The study was so designed that the experiments could be performed concurrently using the same goats at weekly intervals.

The first experiment was directed to ascertain whether Rompun could restrain the goat in lateral recumbency, without physical restraint. In this trial, Rompun was given intramuscularly in a dose of 0.25 mg/Kg bwt (2% solution). The onset of the effect, the degree of efficacy and the duration of the action were observed and recorded. The goats were placed on their sides in order to see whether they would remain quietly in that position.

The satisfactory results obtained with the dose of 0.25 mg/Kg bwt in large ruminants served as a basis for the selected dose in goats. ROSENBERGER, HEMPEL and BAUMEISTER (1968), SAGNER, HOFFMEISTER and KRONEBERG (1968) and BAUMEISTER (1973) recommended this dose in cattle ; KHAMIS and SALEH (1970), SHOKRY (1972) ; FOUAD and SHOKRY (1973) in buffaloes ; SAYED (1973) ; KHAMIS, FOUAD and SAYED (1973) in camels.

The object of the second experiment was to determine the effect of Rompun's premedication on the amount of Baytenal (sodium thiobarbiturate-Bayer) required to induce general anaesthesia and to assess its duration. This trial was bifolded. Firstly, Baytenal (5%) was injected intravenously ; at a dose rate of 20 mg/Kg bwt ; slowly through the jugular vein until the reflexes were abolished. The amount of the anaesthetic used and the duration of anaesthesia were recorded. In the second trial, Rompun was given intramuscularly, 5 minutes prior to the intravenous injection of Baytenal. The amount of anaesthetic and the duration of anaesthesia were recorded as before.

The duration of Anaesthesia was the time from disappearance of the corneal reflex until the appearance of voluntary movements. The goat was considered capable for voluntary movement when it could hold up its head.

The third experiment was aimed to ascertain the value of Rompun as postanaesthetic medication. In this trial, when the goat had regained their ability to move voluntarily ; after Baytenal anaesthesia ; they were given Rompun intravenously. Observations were recorded as to the duration of the resulting reanaesthetization effect comprising loss of voluntary movements and abolishment of reflexes.

RESULTS

1. Effect of "Rompun"

Rompun in the dose of 0.25 mg/Kg bwt allowed the goats to be placed in lateral recumbency without physical restraint (Fig. 1).

The sedative effect of Rompun set in 3-5 minutes after administration. The onset of the effect was recognized by increased salivation, protrusion of the tongue, repeated urination of considerable amounts, drooping of the upper eye-lids and sleep-like state in milk fever position (Fig. 2). The effect of Rompun lasted for 90 minutes in average. No excitement phase was observed either during induction or recovery from sedation.

2. Effect of "Baytenal"

The average amount of Baytenal required to abolish the corneal reflex in the goat was 250 mg (5 c.c. 2%). The average duration of anaesthesia was 15 minutes.

3. Rompun as Preanaesthetic

Rompun as preanaesthetic reduced the amount of Baytenal to 150 mg (3.c.c.) in average, with a marked reduction (40%). Premedication with Rompun resulted in an anaesthesia of 25 minutes duration in average. The duration of anaesthesia increased by 66.6%. Induction of anaesthesia was achieved with perfect ease and convenience.

4. Rompun as Postanaesthetic

Postanaesthetic medication with Rompun abolished voluntary and involuntary movements within 1 minute after administration. The corneal reflex was quickly reabolished in all treated goats. The average duration of Rompun's postanaesthetic effect was 39 minutes. As Baytenal had induced a state of general anaesthesia for only 15 minutes, so Rompun increases the average sleep time by 160%.

DISCUSSION

Rompun (C₁₆H₁₂N₂S.HCl) is chemically known as xylazine hydrochloride. It induces a somnolent condition, accompanied by a degree of analgesia. This effect is extensive in cattle (ROSENBERGER *et al.*, 1968; MANGELS, 1969; LANE, 1970 and BAUMEISTER, 1973), variable in buffaloes (KHAMIS and SALEH; 1970; SHOKRY, 1972; FOUAD and SHOKRY, 1973) and in captive wild animals (KLOPELL, 1969; HIME and JONES, 1970), limited in the horse (KELLER, 1969 a and b; AMMANN, 1970; TRONICKE and VOSKE, 1970) and considerable in the camel (SAYED, 1973; and KHAMIS, FOUAD and SAYED, 1973).

According to clinical observations of our experiments, it can be concluded that Rompun proved its efficacy for restraint and preanaesthetic and postanaesthetic medications in goats.

The available literature concerning the application of Rompun lacks its effect on the goat. However, MONZALY (1973) reported a pilot experiment on the clinical effect of the drug in goats.

It is generally accepted that Rompun causes sedation, although the mechanism by which this is done is not known. SAGNER *et al.* (1968) stated that Rompun has a powerful analgesic, hypnotic and muscle relaxing effect. This latter effect was attributed to a suppression of the internal transmission impulses and not due to a paralysis of the neuromuscular transmission. The centrally acting muscle relaxant effect leads to a general relaxation of the musculature which complements the condition of sleep and restraint in lateral recumbency. Moreover, the potentiation of the effect of Baytenal could be explained on the basis that Rompun; like other ataractic drugs; has a central sedative action exerted at subcortical levels. Therefore, anaesthetics which act primarily on the cortical system become effective in small doses.

It could be also concluded that the depressive action of tranquilizers is likely due to their potent inhibition of many enzymatic processes of the brain. Their potentiating effect on anaesthetics could be attributed to the reduction of metabolism before anaesthesia and to the maintenance of haemostasis, i.e. balance between circulation and metabolism (WESTHEUS and FRITSCH, 1961; FRITSCH, and KAEMMERRER, 1962 and MONZALY, 1972).

The marked reanaesthetization produced by Rompun's postmedication could be attributed to the fact that therapeutic doses of tranquilizers give rise to three main neurological manifestations - namely psychic, autonomic and somatic manifestations.

The effect of Rompun on the triad: pulse, respiration and temperature has been studied in a previous publication (MONZALY, 1973). No explanation can be offered concerning the increased salivation observed in Rompun experimented goats in spite of the well known fact that tranquilizers have a depressant action on the central parasympathetic system with the inhibition of salivary and gastrointestinal secretions. Thus, it is advisable to keep the head and neck low to avoid the aspiration of saliva and/or ruminal fluid (BAUMEISTER, 1973).

Finally, the author would like to suggest the possible applications of Rompun and Baytenal combination for those painful deepseated and prolonged surgical interventions where profound and sustained muscular relaxation is required. Naturally such manipulations include Laparotomies, hernia operations, ovariohysterectomy, caesarian section, amputation, of the digit, fractures, and mastectomy and other added operations.

On the other hand, the outstanding reanaesthetization capacity of Rompun could be satisfactorily utilised for the prolonged immobilization needed for the application and retention of plaster bandages in bone fractures and joints' dislocations.

Moreover, the preparation can be chiefly used for easy restraint on account of its rapid and predictable effect, which renders superflous the ordinary means of restraint required for examination and surgical interferences.

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TABLE 1: Results of Rompun administration for Restraint and for pre- and Postanaesthetic Medications in Goats

No. of animal.	Sex	Body weight Kg.	Rompun for Restraint		Baytanal Anaesthesia						
			Effect's		Without premedication			Total Dose			Duration reanaesthesia min
			onset min.	duration min.	mg.	ml.	min.	mg.	ml.	min.	
1	Female	12.5	3	105	250	5	15	150	3	25	39
2	Female	12.5	3	90	250	5	15	150	3	25	39
3	Male	12	5	90	240	4.8	12	140	2.8	22	35
4	Male	12	4	90	240	4.8	12	140	2.8	22	35
5	Male	13	5	75	260	5.2	18	160	3.2	28	43
6	Female	12.5	3	105	250	5	15	150	3	25	39
7	Female	12.5	3	90	250	5	15	150	3	25	39
8	Female	12.5	3	75	250	5	15	150	3	25	39
9	Female	13	4	90	260	5.2	18	160	3.2	28	43
10	Female	12.5	3	75	250	5	15	150	3	25	39
11	Male	12.5	5	90	250	5	15	150	3	25	39
12	Female	12.5	5	105	250	5	15	150	3	25	39

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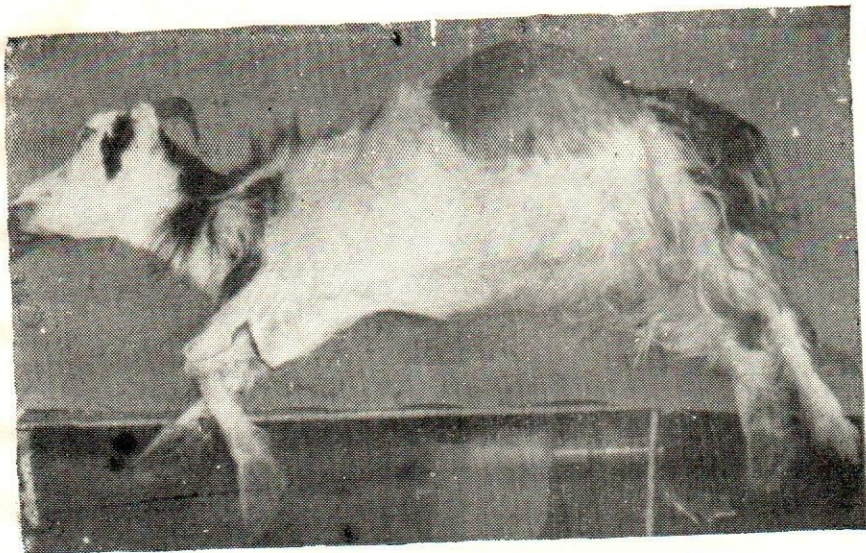


Fig. 1.—Recumbent goat in lateral position without physical restraint. The slight tympany observed, soon disappeared after resting the animal on its foreleg.



Fig. 2.—Milk fever position, 1 hour after the injection of 0.25 mg/kg bwt "Rompun" 2%.

