دراسة: تأثير مركبات الكورتيزون الصناعية
(ترى اميتيلون اشيتونيد)
على بعض المركبات البيوكيميائية في خصائص
دم الافراد

حمدى ابراهيم ، محمد كرم ، ثروت عبد العال ، ثروت نافع

أجرى هذا البحث لمعرفة تأثير المركبات الصناعية للكورتيزون
(ترى اميتيلون اشيتونيد) على خصائص نعما غير حوار تزن مابين
الى 5 كيلو جرام.

تم حقن النعما في الفضل بجرعة ب3 مللي مم لكل واحدة يوميا
 ولمدة خمسة أيام متتالية. ووجد بعد الحقن أن خصائص الدم (ج و ب)
وكذلك نسبة السكر البدل، بينما حدث اختفاء معناه في النسبة الكلية للكيالغ و
الأما بالنسبة إلى خصائص الفوسفات القاعدية قبل يحدث في نشاطها أي تغيير
معنوي، ولقد لوحظ أن جميع قم النشاط البيوكيميائي للمواد السابقة
قد عادت إلى مستوى قبل الحقن بعد خمسة أيام من حقن آخر جرعة.

* ترى اميتيلون اشيتونيد - إنتاج شركة أسكوم أبحاث.
Dept. of Vet. Medicine,
Faculty of Vet. Med., Assiut University,
head of Dept. Prof. Dr. I.S. Abd Alla.

EFFECT OF SYNTHETIC CORTICOSTEROIDS
(TRIAMCINOLANE ACETONIDE)*
ON SOME BIOCHEMICAL PARAMETERS IN THE BLOOD
SERUM OF SHEEP
(With One Table)

By
H. IBRAHIM; M.H. KARRAM; TH.S. ABD EL ALL and TH. S. NAFIE
(Received at 26/3/1984)

SUMMARY

An investigation on the effect of synthetic corticosteroid (Triamcino-
lone acetonide) was carried on five mature non pregnant ewes
weighing 40 - 50 Kg. All ewes were injected intramuscularly Triamc-
inolone acetonide 40 mg daily for 5 days for every ewe.

A significant increase was recorded in GOT, GPT, total lipids and
glucose of the blood serum, however, a significant decrease was
seen in the total proteins after injection. No significant variation
was recorded in the blood serum alkaline phosphatase activity.
All investigated parameters returned to pretreatment values after
5 days post last injected dose.

INTRODUCTION

Many synthetic corticosteroids have been introduced in veterinary practice, the anti-inflam-
matorv and glucocorticoid potency of which are much greater than natural one (FORSHAM,
et al., 1948).

REID (1960) suggested that pregnancy Toxamia in sheep is a diabetic like syndromes
resulting from adrenocortical hypofunction coupled with severe undernutrition.

ROSEN, et al. (1958) reported that a significant increase in GPT activity occurred in
the liver of animals treated with corticosteroids, however, the values of GOT in the treated
animals were only slightly higher than those of untreated control animals. ROSEN et al. (1959)
recorded that corticosteroids have a stimulatory influences upon the Glutamic Pyrovic Transa-
minase system. BRANSOME (1968) stated that the main physiological responses to treatment
with cortico-steroids involve a rapid increase in the availability of glucose.

An initial effect of prolonged corticosteroid administration, reflected a negative nitrogen
balance (CYRIAX and TROISER, 1953). On the other hand KANEOKO and CORNELIUS (1971)
found that chronic overdosage with corticosteroides lead to a decrease in muscle protein,
oedema and fibrosis of muscle tissues.

The aim of the present study is to investigate the effect of the corticosteroid on some
biochemical constituents in the blood serum of sheep.

* Triamcinolone acetonide produced by: SQUIBB EGYPT.

MATERIALS and METHODS

Five mature non pregnant female sheep weighing between 40 - 50 Kg. were used in the present study. All animals, were injected corticosteroid i/m at a dose rate of 40 mg daily for 5 days. Blood sample were taken from the jugular vein before, 1, 2, 3, 4 and 5 days post injection. The serum samples were obtained. Serum was analysed for determination of GOT and GPT according to Reitman and FRANKEL (1957). Alkaline phosphatase activity was determined by the method of SOMMER, (1954), total protein was by micromethod described by HENERY (1964), serum glucose by the method of WERNER, et al. (1970) and total lipids were determined by WEICHSELBAUM (1946).

RESULTS

It is evident from table (1) that corticosteroid injection to mature non pregnant female sheep produced a significant increase in the blood serum of GOT, GPT, total lipids and glucose. On the other hand there was a significant decrease in the total blood serum proteins after injection. No significant differences could be noticed in blood serum alkaline phosphatase activity resulted from corticosteroid administration. All serum biochemical parameters in this study were returned nearly back toward pretreatment values after 5 days post last injected dose.

DISCUSSION

It is clear from the obtained results that corticosteroid (40 mg) injection to sheep induced a significant increase in both GOT and GPT activities. This could be explained according to ROSEN et al. (1959) who found that corticosteroids have a stimulatory influence upon the transaminase system. On the other hand FORSHAM, et al. (1948) attributed the increased liver transaminase activity to the increased rate of deamination and breakdown of tissues following corticosteroid administration.

Unsignificant variation could be detected in blood serum alkaline phosphatase. These results were in agreement with the findings reported by RASEN et al. (1959).

The significant decrease in the total protein level in the blood serum as a result of corticosteroid injection may be attributed to the stimulation of gluconeogenesis in the liver from proteins (ROSEN, et al. 1958). FORSHAM et al. (1948) proved that corticosteroid reduce the protein synthesis and sometimes increase the utilization of tissue proteins resulting in a state of negative nitrogen balance.

The total lipids were significantly increased as a result of corticosteroid injection, such increase in the total lipids in view of CYRAX and TROISER 61963) was due to the increase of fat absorption from the intestine with subsequent stimulation of fat mobilization from its depots.

The increase in blood serum glucose level as a result of corticosteroid injection may be due to increased absorption of sugar from intestine and also increased resistance to insulin (REID, 1960). Another possible explanation for this increased serum glucose concentration may be due to depression of glucose uptake and its oxidation by tissues.
CORTICOSTEROIDS AND BIOCHEMICAL PARAMETERS IN THE SERUM OF SHEEP

REFERENCES


Table (1)
Influence of corticosteroid injection on blood serum parameters of sheep.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Before treatment</th>
<th>Days post treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
| GOT (μ/l)          | 16.21            | 22.9
|                    | ± 1.73           | ± 1.71 | ± 1.01 | ± 1.01 | ± 0.8 | ± 0.79 |
| GPT (μ/l)          | 44.00            | 51.22
|                    | ± 3.71           | ± 3.73 | ± 4.7 | ± 3.79 | ± 4.701 | ± 3.73 |
| Alkaline phos. (μ/l) | 112.63          | 113.13
|                    | ± 22.46          | ± 20.11 | ± 12.73 | ± 23.72 | ± 21.71 | ± 23.72 |
| Total Protein (g/100 ml) | 5.72          | 4.1
|                    | ± 0.709          | ± 0.711 | ± 0.722 | ± 0.713 | ± 0.722 | ± 0.711 |
| Total Lipids (mg/100 ml) | 296.49        | 335.13
|                    | ± 23.12          | ± 21.11 | ± 20.22 | ± 20.11 | ± 18.9 | ± 19.78 |
| Glucose (mg/100 ml) | 69.33            | 85.1
|                    | ± 8.1            | ± 7.23 | ± 7.7 | ± 7.7 | ± 11.1 | ± 8.79 |

*= P < 0.05
**= P < 0.01