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UTERINE PROLAPSE IN RELATION TO SERUM CALCIUM, MAGNESIUM AND INORGANIC PHOSPHORUS IN AWASSI EWES

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SUMMARY

The study was undertaken to investigate the relationship between serum calcium, magnesium and inorganic phosphorus in the uterine prolapse in Awassi Ewes. The serum of animals with uterine prolapse had significantly lower calcium and inorganic phosphorus levels ($P<0.01$) as compared to the control group, While serum magnesium showed no significance ($P<0.05$) difference. The results of this study revealed the importance of application of drugs rich in minerals espacially calcium in treating the condition.

INTRODUCTION

The Uterine Prolapse is a common condition observed in the ewe following parturition (1). The problem has been reviewed by several authors (1,2). The incidence of uterine prolapse in Awassi Ewes was found about (14.3%) among puerperial disease (3). It was observed that hyposcalcemia and low plane of nutrition may be an etiological factors (1). systematic study of blood minerals in ewes with uterine prolapse has been carried out previously to alimited extent (4). The present study was conducted to investigate the relationship between the uterine prolapse in Awassi Ewes and blood minerals, calcium and inorganic phosphorus.

MATERIALS AND METHODS

The present study was carried out on (40) clinical cases of Awassi Ewes presented to Obstetrics Clinic of Coll. Vet. Med., Univer of Mosul, Iraq, Half of the animals (20) suffering from uterine prolapse and the other half showed a minor degree of dystocia which served as a control group. The ages of the animals ranged from 2-4 years.

Venous blood samples were collected in a vacutainer tubes and then allowed to clot at ambiant temperature, centrifuged and the serum drawn off, the serum was then frozen at -20°c in individual test tube until they were submitted to the lab for analysis.

Serum calcium and magnesium were measured by tomic Absorption spectrophotometer by the method of Bowers and Phbus (5) While, serum inorganic phosphorus was measured according to the method of Fiske and Subbarow (6). student 't' test was applied for statistical analysis (7).

RESULTS AND DISCUSSION

The average age of animals with uterine prolapse was 3 years as compared to 4 years for the control group. The values of serum calcium, magnesium and inorganic phosphorus are recorded in table 1 .

The sera of animals with uterine prolapse had significantly lower calcium and phosphors concentration ($p<0.01$) as compared to the control group, while, serum magnesium levels showed no significant difference.

The distribution of values for the serum calcium, inorganic phosphorus and magnesium levels for both groups are shown in tables, 2,3 and 4 respectively. sixteen (80%) of the ewes with uterine prolapse were showed mild hypocalcemia (6.0 mg/dl to 7.9 mg/dl) as compared to control group with minor dystocia. Fourteen (70%) of the animals with prolapse and only one (5%) of the control group were showed hypophosphatemia.

The lower serum calcium in the animals with uterine

prolapse is in agreement with the finding of stubbings (4). The lowerd levels of serum calcium may be attributed to the general status of the animals in relation to its diet, as it is already known that in sheep diet can have a direct influence on serum calcium (3).

The mechanism by which lowered level of serum clacium would predispose to prolapse of the uterus may involve loss of uterine tone, while , Thorn et al, (9) observed calcium play an important role in the relase of neurohypophyseal hormones. Kaneko and cornelius (10) have been found that estrogen may tend to depress serum calcium levels. The observed hypophosphatemia may be attributed to phosphorus deficient diet(1). The levels of ovine serum magnesium in this study agree closely with other findings, Thus normal serum magnesium levels in ruminants range from (1.8-3.2 mg/dl) (11). The rises in serum magnesium levels may occur as a result of hypocalcemia.

The present work indicates that deficiency of calcium and phosphorus even at subclinical level may be responsible for predisposing the ewes for uterine prolapse, Hence, adminstration of drugs rich in minerals especially calcium may be helpful in treating the condition.

Finally, further investigation on the levels of estrogen and neurohypophyseal hormones in the prolapsed ewes is required.

Table 1: The values of serum calcium, magnesium and inorganic phosphorus

Parameters (mg/dl)	Control group (no.=20)	Range	Uterine prolapse (no.=20)	Range
Calcium	9.82±0.50	8-11	7.36±0.49*	6.4-9.4
Magnesium	2.09±0.31	1.7-2.5	2.51±0.33	1.6-3.2
Inor. Phos.	4.87±0.43	2.9-6.2	2.50±0.33	1.7-5.4
Ca:Mg ratio	1:5		1:3	
Ca:P ratio	1:2		1:3	

+ = Mean ± SE * = Significant (P<0.01)

Table 2: Distribution of serum calcium levels in uterine prolapse and control group.

Calcium (mg/dl)	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10-10.9	11-11.9
No.of ewes with U.P.(n=20)	10	6	2	2	0	0
No.of cotrol ewes (n=20)	0	0	5	4	9	2

Table 3: Distribution of serum inorganic phosphorus levels in uterine prolapse and control groups Phosphorus

Phosphorus (mg/dl)	1.0-1.9	2.0-1.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9
No.of ewes with U.P.(n=20)	8	6	3	2	1	0
No.of control ewes (n-20)	0	1	6	1	6	6

Table 4: Distribution of serum magnesium levels in U.P. & Control group.

Magnesium (mg/dl)	1.0-1.9	2.0-2.9	3.0-3.9
No.of ewes with U.P. (n=20)	5	9	6
No.of control ewes (n=20)	9	12	0

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علاقة تدلي الرحم مع مستوى الكالسيوم ، المغنيسيوم والفسفور غير العضوي في النعاج العواسي

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الخلاصة

اجريت الدراسة على (٤٠) نعجة ، نصفها مصاب بتدلي الرحم والنصف الاخر كانت تعاني من عسر الولادة البسيط ، من خلال مراجعتها للمستشفى البيطري التعليمي / كلية الطب البيطري / جامعة الموصل. تراوحت اعمار الحيوانات بين ٢-٤ سنوات.
تم اخذ عينات دم من الوريد الوداجي للنعاج وقيس مستوى الكالسيوم، المغنيسيوم والفسفور غير العضوي المصابة بتدلي الرحم منخفض وبصورة ملحوظة (أ <٠,٠١) بينما لم يلاحظ وجود فرق معنوي في مستوى المغنيسيوم. وبينت الدراسة اهمية استخدام المعادن وخصوصاً الكالسيوم عند علاج حالات تدلي الرحم.