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ASSOCIATION OF UTERINE PROLAPSE TO SERUM CALCIUM, MAGNESIUM AND INORGANIC PHOSPHORUS IN LOCAL BREED IRAQI CATTLE

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ABSTRACT

The study was conducted on 44 clinical cases of Iraqi cattle(Karadi and Sharabi Breeds), presented to obstetric section,Coll. Vet. Med.,Univ. of Mosul, Mosul,Iraq. Twenty two of them were suffering from uterine prolapse, the rest showed normal birth and served as control group. Blood samples were collected to investigate the serum levels of calcium, inorganic phosphorus and magnesium in both group. The serum levels of cows with uterine prolapse had significantly lower calcium and inorganic phosphorus (P <0.01) as compared with the control group. Serum magnesium levels showed no significant difference.

الخلاصة

علاقة تدلي الرحم مع مستوى الكالسيوم، الفسفور غير العضوي والمغنسيوم في مصل الأبقار المحلية

أجريت الدراسة على ٤٤ بقرة محلية (نوع الكرادي والشرابي) من خلال مراجعتها للمستشفى البيطري التعليمي / كلية الطب البيطري / جامعة الموصل، نصفها (٢٢) كانت تعاني من حالة تدلي الرحم بعد الولادة والنصف الآخر ذات ولادة طبيعية كمجموعة ضابطة.

جُمعت عينات دم من كلا المجموعتين وجرى تحليل

مصل الدم لقياس كل من الكالسيوم، الفسفور غير العضوي والمغنسيوم.

لوحظ إنخفاض معنوي ($P<0.01$) في مستوى كل من الكالسيوم والفسفور غير العضوي في الأبقار التي تعاني من تدلي الرحم كما يلاحظ وجود فرق معنوي في مستوى المغنيسيوم.

INTRODUCTION

Uterine prolapse is a common condition following parturition and causes a great economical loss (Arthur et al., 1982). The incidence of uterine prolapse in Iraq has been reported to be 12.9% from the preiparturient disorders (Majeed and Juma, 1989). Hypocalcemia is the main cause of uterine prolapse in cattle (Odegaard, 1977: Richardson et al.,1981: Risco et al., 1984).

Systematic study of blood minerals in cows with uterine prolapse has been carried out previously to a limited extent (Stauge, 1970: Odegaard, 1977: Richardson et al., 1981: Risco et al.,1984).

The objective of this study is to determine the levels of serum calcium, magnesium and inorganic phosphorus and to establish their relationship with the occurrence of uterine prolapse.

MATERIALS AND METHODS

The study was conducted on 44 clinical cases of Iraqi cattle (Karadi and Sharabi Breeds) presented to obstetric clinic,Coll. Vet. Med., Univ. of Mosul. Twenty two of them were diagnosed as cases of uterine prolapse and others showed normal birth which served as control group. The age of animals ranged from 3-7 years.

Blood samples were collected from Jugular vein using vacutainer tubes.The blood was allowed to clot at ambient tempenature,centrifuged and the serum drawn off. The serum was then

frozen at -20 C in individual test tubes until analysed.

Serum calcium and magnesium were measured by Atomic Absorption Spectrophotometry as per method of Bowers and Pybus (1972) While, serum inorganic phosphorus was measured according to the method of Fisk and Subbarow (1925).Student 't' test was applied for statistical analysis (Steel and Torrie,1960).

RESULTS AND DISCUSSION

The values of serum calcium, magnesium and inorganic phosphorus are shown in Table 1. The animals with uterine prolapse had significantly lower calcium and inorganic phosphorus levels($P<0.01$)as compared with the control group. Serum magnesium level showed no significant differenc. The lower serum calcium in the cows with uterine prolapse is in agreement with the findings of Stauga (1970), odegaard (1977), Richardson et al.(1981)and Risco et al.(1984). Hypocalcemia tends to make the uterus atonic and delays involution of the cervix, both of which predispose to uterine prolapse (Roberts, 1971:Odegaard,1977:Risco and Reynolds,1988).it was difficult to say whether or not the mild hypocalcemia exhibited by some of the cow with uterine prolapse could produce this effect. Fasting may however results in depression of serum calcium levels in ruminant, estrogen has also been found to depress serum calcium level, while,simultaneously incrasing serum phosphorus level (Kaneco and Cornelius,1970). Thorn et al.,(1978) observed that calcium play an important role in the relase of neurohypophyseal hormones. The observed hypophosphatemia supported the findings by Pandit et al., (1982) in cases of uterine prolapse in Buffaloes. the serum magnesium level recorded in this study is in agreement with Odegaard (1977),Richardson et al., (1981) in cattle and Pandit et al., (1982) in Buffaloes.

Table 1: Serum calcium,magnesium and inorganic phosphorus level in cows with uterine prolapse and normal birth.

Parameter	No. of animals	Normal birth	uterine prolapse
Calcium (mg/dl)	22	8.6 ± 0.13 (8.0 - 9.5)	7.2 ± 0.13* (6.6 - 8.0)
Inorg.Phos. (mg/dl)	22	4.2 ± 0.13 (3.5 - 4.9)	2.9 ± 0.1* (2.5 - 3.4)
Magnesium (mg/dl)	22	3.8 ± 0.08 (2.8 - 3.4)	3.4 ± 0.1 (2.8 - 3.9)

± = X ± Standard Error.
* Significant difference (P < 0.01)

The present study indicated that calcium deficiency may be responsible for predisposing the cows to uterine prolapse, hence, administration of minerals especially calcium is helpful in treating the condition. However much work is required in the area of treatment of the uterine prolapse.

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