

Serum Cholesterol, Total Proteins, Phosphorus and Calcium levels in Oestrus and Anoestrus Non Descript Cows

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ABSTRACT

Serum levels of cholesterol, total proteins, phosphorus and calcium were studied in oestrus and anoestrus non descript cows. In oestrus cows, the cholesterol, total proteins and phosphorus levels were significantly higher than anoestrus cows. Higher levels of calcium were recorded in oestrus cows but the difference was non significant. Ca:P ratio was higher (3:1) in anoestrus cows than oestrus cows (2.2:1).

—x—x—x—

Anoestrus is the single largest cause of infertility both in cows and buffaloes which is caused by various factors. One of them being deficiency of certain minerals in the blood. Cholesterol is precursor of reproductive hormones. Lack of calcium, phosphorus and proteins upsets the proper functioning of reproductive organs (Herrick, 1977).

MATERIALS AND METHODS

The study was conducted in 16 (eight cows in oestrus stage and eight cows in post partum anoestrus) non descript cows between age group 5-7 years brought to Clinics of Veterinary College, Bidar. Cows which failed to show oestrus 60 days or more post partum with smooth, inactive ovaries after thorough gynaeco clinical examination were considered as post partum anoestrus cases. Cows in oestrus were considered after thorough gynaeco-clinical examination.

After blood collection, serum was separated and biochemical parameters viz., cholesterol, phosphorus, calcium and total proteins were estimated as per the standard methods.

RESULTS AND DISCUSSION

The cholesterol concentration was significantly higher in oestrus cows (160±6.78 mg%) than anoestrus cows (94.38±6.59 mg %). The present findings are in line with those earlier reported by Henrics *et al.*, (1971) and Bhatacharya *et al.*, (1972) who encountered highest cholesterol values at oestrus when females were under oestrogen dominance and later it went on declining as the animal enters luteal phase.

The serum total proteins concentration was significantly higher (7.74±0.37 g%) in oestrus cows than anoestrus cows (4.41±0.27 g%) which are in line with the findings of Mehta *et al.*, (1989) and Ali *et al.*, (1991 b). Low level of serum proteins may lead to deficiency of certain amino acids that are required for gonadotropin synthesis thereby impairing the reproduction (Vohra, *et al.*, (1995).

Significant higher levels of serum phosphorus were recorded in oestrus cows

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(4.71±0.44 mg %) than in anoestrus cows (3.09±0.09 mg %) Similarly Ali *et al.*, (1991a) reported high levels of phosphorus in normal cyclic heifers in comparison to anoestrus heifers. Eltohamy *et al.*, (1980) pointed that low phosphorus level in serum is responsible for infertility.

The serum calcium levels did not reveal any significant difference between the two groups (10.07±0.31 vs 9.33±0.01 mg%) and similar findings were made by Prasad *et al.*, (1984) and Jain and Pandita (1995).

The serum Ca:P ratio in oestrus cows was 2.2:1 as against 3:1 in anoestrus cows.

As per Carnahan (1974) for efficient reproduction the serum Ca:P ratio should be between 1.5:1 to 2.5:1. Both calcium and phosphorus are inversely related and instead of the absolute level of one particular mineral, the ratio of Ca:P appears to be more related to reproduction (Hignett, 1959).

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