EFFECT OF CoCu MEDICA, HIT RIT AND PLACENTREX ON SERUM BIOCHEMICAL PROFILE OF ANESTRUS COWS

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ABSTRACT

A total number of 40 crossbred anestrus cows were randomly allocated to four groups viz Gr I (CoCu Medica), Gr. II (HitRit), Gr. III (Placentrex) and Gr. IV (Control). Serum biochemical profiles namely glucose, total protein, calcium, phosphorus, copper and iron were estimated which increased significantly (P<0.01) in all the treatment groups on the day of onset of estrus.

Key words: Anestrus cows, Serum biochemical profile, CoCu Medica, Hit Rit

Anestrus forms the major condition constituting about 2/3 of the infertility problems occurring in crossbred cattle (Kutty and Ramachandran, 2003). The first postpartum estrus is dependent on many factors like involution of uterus, endocrine constitution, hormonal balance, uterine health, mammary function, season, parity, suckling (Arthur *et al.,* 1982) and nutritional status including mineral and vitamin levels (Mc Donald *et al.,* 1961). The blood biochemical and mineral profiles during post partum period have also great relevance to future fertility in dairy animals and thus studies of these factors in blood of post partum cows may be a potential aid in characterizing and the diagnosing nutritional related disorders in post parturient cows.

The study was conducted on a total number of 40 post partum anestrus crossbred cows in and around Ranchi (Jharkhand) which were diagnosed following the procedure of Roberts (1971). The cows were randomly allocated to four groups namely Gr. I, Gr. II, Gr. III and Gr. IV containing 10 cows in each group. Cows in group I were treated with CoCu medica (R.S. herbo medica, Bangalore) one bolus/cow/day for 20 days. The cows in group II received HitRit (Respel pharma, Bangalore) @ 3 capsules/cow/day for two days and cows not responding within 11days received a second dose. Placentrex (Albert David limited,Kolkata) was given to the cows of Gr. III @ 10ml I/V at 24 hrs interval for three days. Blood was collected aseptically before treatment and at first post treatment estrus. Serum was separated and preserved at -20 ^{0}C for further investigation. Occurrence of estrus post treatment was recorded.

Estimation of serum glucose was done by GOD-POD method (Trinder,1969) and total serum protein by Biruet method(Tietz,1986).Serum calcium, phosphorus, copper and iron were estimated as per the methods, OCPC (Moorehead and Briggs,1974), Ammonium molybdate (Wang *et al.*, 1983), Colorimetric (Akita and Yiamashita,1989) and Ferrozine (Siedel *et al.*, 1984), respectively. The data were analysed statistically following the procedure of Snedecor and Cochran (1996).

Serum glucose level increased from Day 0 to the day of first estrus in all the groups but the rise in CoCu medica group was significantly highest (30.50 ± 3.17 mg/dl) among all. Significantly higher blood glucose level recorded on the day of estrus than in post partum anestrus cows before treatment is in agreement with the report of Ramakrishna (1997).

The average total serum protein levels were higher in all the treatment groups on the day of estrus than the pre treatment values, which was maximum in CoCu

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medica group. This finding was in general agreement with the report of Pal *et al.* (1991). Maximum increase in glucose and total serum protein in CoCu medica group might be due to the mineral contents present in the CoCu medica, where cobalt, zinc, copper etc helped better functioning of the enzymatic system leading to optimum anabolic activity and ultimately rise in protein and glucose level.

The serum calcium and phosphorus levels also increased at post treatment estrus over the pre treatment values in all the treatment groups, significantly higher increase in calcium (3.66 ± 0.60 mg/dl) and phosphorus level (2.15 ± 0.27 mg/dl) was observed in CoCu medica group . This finding was in accordance with Singh *et al.* (2006). Maximum increase in serum copper level (51.35 ± 6.11 µg/dl) and iron level (94.08 ± 8.95 µg/dl) was also recorded in the CoCu medica group with the significant ($P<0.01$) increase in post treatment values in all the treatment groups. The present finding gains support from the report of Pradhan *et al.* (1995) and Ramakrishna (1997). At the time of estrus the body's metabolic activities increase and this might be the reason behind the elevation in all the above parameters in treated cows.

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REFERENCES

Akita and Yiamashita, S. (1989).Sensitive, Direct colorimetric assay for copper in serum. Clin. Chem., **35**(4) : 552-554.

Arthur, G.H., Noakes, D.E. and Pearsona, H. (1982). Veterinary Reproduction and Obstetrics. 5th ed. English Language Book Society Bailliere Tindall, London.

Kutty, C. I. and Ramachandran, K. (2003). Bovine infertility – a field oriented categorization based on investigation among crossbred cattle in a district of Kerala. Indian J. Anim. Sci., **73**(2) : 35-37.

McDonald, R.J., McKay, G.M. and Thompson, J.D. (1961). The use of organic iodine in treatment of repeat breeder cows. Proc. IV Int. Cong. Anim. Reprod., 679-681.

Moorehead, W.R. and Briggs, H.C. (1974).2-Amino- 2-methyl-1-propanol as the alkalizing agent in an improved continuous-Flow cresolpht complexone procedure for calcium in serum. Clinical Chem., **20** (11): 1458-1460.

Pal, S.K., Mohanty, B.N., Ray, S.K.H. and Mohanty, D.N. (1991). Studies on serum protein, cholesterol and certain enzymes in relation to reproductive status in bovine females. Indian J. Anim. Reprod., **12**(1) : 28-29.

Pradhan, J., Mohanty, B. N., Ray, S.K.H. and Mohanty, D. N. (1995). A Comparative study of Haemoglobin, Copper and Zinc concentration of post partum anestrous cows. India J. Anim. Reprod., **16**(1) : 28-31.

Ramakrishna, K.V. (1997). Comparative studies on certain biochemical constituents of anestrous crossbred Jersey rural cows. Indian J. Anim. Reprod., **18** : 33-35.

Roberts, S.J. (1971). Veterinary Obstetrics and Genital Diseases, 2nd edn. (Indian Reprint). CBS Publishers and Distributors, New Delhi – 110032, pp. 824-826.

Siedel, J. Wahlefeld, A. and Ziegenhorn, J. (1984).Improved Ferrozine R-based reagent for the determination of serum iron (transferrin iron) without deproteinization. Clinical Chem., **30** : 975.

Singh, Somarendra and Singh, O.N.K. (2006). Blood biochemical and enzyme profile in estrus and anestrus heifers. Indian Vet. J., **83**: 726-729.

Snedecor, G.W. and Cochran, W.G. (1996). Statistical methods, IOWA State University Press. Ames, U.S.A.

Tietz, N.W. (1986). Text Book of Clinical Chemistry, 8th edn.W.B. Saunders. pp. 579.

Trinder, P. (1969).Determination of Glucose in blood using Glucose oxidase with an alternative oxygen acceptor. Ann. Clin. Biochem., **6**: 24-25.

Wang, J., Chen, C.C. and Osaki, S. (1983). Optimization of phosphorus UV reagent.Clin. Chem., **29** : 1255.