

Study of progesterone level during first trimester of pregnancy in cows.

¹Jawad K. Taher , ²Khawla A. Hussein

^{1,2}Department of surgery and obstetrics, College veterinary medicine, university of Baghdad, Iraq.

¹Email: drjawadkadhim@gmail.com

²Email: khawlaabbasshussein@gmail.com

I. INTRODUCTION

Measurement of progesterone is an indirect method for pregnancy diagnosis in many livestock species including cattle, buffaloes, sheep, and goats. Conception extends the life of the corpus luteum (CL) by preventing the luteolytic mechanism from being triggered, thus prolonging and maintaining its functional characteristics, ensuring continued high progesterone levels (Spencer, et.al., 1995). (Shemesh et al., 1973) proposed that the difference in peripheral plasma progesterone levels between pregnant and non pregnant cows, 19 days after insemination, can form the basis for a very early pregnancy test. (Laing and Heap 1972) first documented this in milk to diagnose cows in early pregnancy Progesterone maintains the uterine endometrium in a state which supports embryonic development, implantation, and foetoplacental development. Progesterone concentrations vary with the stage of the estrous cycle which makes it one of the most commonly studied reproductive hormones in bovine ruminants for pregnancy detection and ovarian activity (Kaneko,et.al.,1994). Studies in the bovine estrous cycle indicate that the milk or serum progesterone concentrations reach a maximum value 13-14 days after estrus, and if the animal is pregnant, these continue to remain elevated up to day 21 after fertilization (Parkinson, et al.,1994) . These high levels of progesterone in serum or milk between days 18 and 24 after insemination form the basis of establishment of pregnancy in cattle (Sasser, and Ruder,1987; Shemesh,1973). Interferon- τ exerts its antiluteolytic effect by inhibiting the endometrial expression of oxytocin receptors, through which oxytocin stimulates pulsatile PGF 2α release (Wolf,2003). Although low progesterone concentrations at 18 to 24 days after breeding can accurately predict non pregnancy, high progesterone concentrations during this period are not the specific indicators of pregnancy due to variations among cows in duration of the estrous cycle as well as the incidence of early or late embryonic mortality. The advantages of progesterone assay for pregnancy diagnosis include noninvasive collection of milk sample and the feasibility to conduct the test on the farm using commercial cow-side milk progesterone test kits [Pennington,1985 ; Gowan,1982 ; Wimpy,et.al.,1986), though the sensitivity gets compromised to some extent with these assay kits.

Key Word: progesterone, pregnancy, cows



II. MATERIALS AND METHODS

Thirteen pregnant cows were selected for the study. Study animals selected from field located in Thi- Qar province south of Iraq. Blood samples were collected from the jugular vein in non heparinized vials for progesterone assay. Blood samples were collected on days 30, 60 and 90 of pregnancy. The blood was separated within 30 min by centrifugation (3000rpm for 15 min) and stored at -20 C until analysis. Blood serum profiles of progesterone were analysis in using radioimmunoassay in a standard diagnostic kit.

III. RESULTS

Table1: Mean (\pm SE) p4 level concentration during first trimester of pregnancy

Gestation period	No	P4 level (mg/ml)
First months	13	11.45 \pm 0.75 a
Second months	13	9.03 \pm 0.42 b
Third months	13	9.74 \pm 0.68 b
LSD value	---	1.469 *
Means having with the different letters in same column differed significantly. * (P \leq 0.05).		

IV. DISCUSSION

The mean of progesterone hormone concentration during first trimester pregnancy was 11.45 \pm 0.75, 9.03 \pm 0.42 and 9.74 \pm 0.68 respectively. in the present study appear the Second and third months of pregnancy were no significant difference at (P \leq 0.05) in progesterone concentration but found significant difference between first months and another months, higher progesterone concentration appear in first months than lower in second and third months, increase the progesterone level in first months may be because of administration luteogenesis hormone during this study. These result disagreement with (Terblanche and Lauschagne, 1981) was recorded the concentration of progesterone level about 3.5 – 6.5ng/ml from the eighth to thirteenth week of pregnancy , also (Terblanche and Lauschagne, 1981) recorded Between the fifth month of pregnancy and parturition progesterone levels ranged between 3 and 8 ng/ml. Also, this result disagreement with (saad,2020) was recorded the concentration of progesterone level in three months of pregnancy in buffalo about 0.2 , 5.44 and 9.2 respectively. Progesterone levels of 3--7 ng/ml (were found 3 weeks after AI with levels of 3,8-6,5 ng/ml being recorded 6 weeks after artificial insemination and 3-7 ng/ml at the time of rectal confirmation of pregnancy at 7-8 weeks(Terblanche and Lauschagne, 1981). The concentration of progesterone in bali cows was 0.76 \pm 0.64ng/ml before pregnancy and increase significantly to 7.43 \pm 5027 ng/ml in the first months of pregnancy (Astili



and Panjaitan. 2013). Pandey et al.,2016 reported that the concentration of progesterone in non pregnant cows would increase until day 15 and decrease due to corpus luteum lysis, but cows diagnosed with pregnancy had higher progesterone concentration than non pregnant cows on the same day. According to (Fair and Lonergan , 2012) higher concentration of progesterone can create an optimal uterine environment for the growth and development of embryo. Karen et al., 2014 suggested that higher concentration of progesterone will stimulate embryo growth during the critical phase of pregnancy.

V. REFERENCES

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