

VAGINAL MUCUS IMPEDANCE IN POSTPARTUM ANESTRUS MURRAH BUFFALOES TREATED WITH DIFFERENT HORMONAL REGIMEN

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ABSTRACT

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Twenty four anestrus postpartum buffaloes were subjected to treatment with CIDR implant plus PGF₂α, Hydroxyprogesterone plus PGF₂α and Buseralin acetate in group I, II and III respectively. Estrus was exhibited by all the buffaloes in treatment group except in group IV which was kept as control. The mean Vaginal mucus impedance (VMI) in Group I, II and III were higher on the day of treatment and declined significantly (P<0.01) on the day of estrus. In responded animals the mean VMI were higher on the day of treatment (52.35±0.70 Ohms) and declined significantly (P<0.01) on the day of estrus (30.78±0.62 Ohms).

Key words: Anestrus buffalo, Hormones, Vaginal mucus impedance

Anoestrus is most prevalent form of infertility encountered in buffaloes and is the most frustrating and challenging problem caused mainly by high ambient temperature, nutritional deficiency, poor management system and hormonal disturbances (Agrawal, 2003). Several studies have been attempted to treat the prolonged postpartum anestrus in buffaloes by using hormonal treatments such as Gonadotropin Releasing Hormone (GnRH), Gonadotropins (Gn), Estrogen, PGF_{2α} and Progesterone (Metwelly, 2006; Singh *et al.*, 2003). Changes in the vaginal mucus impedance helps in the diagnosis and management of anestrus buffaloes. This experiment was designed to study

vaginal mucus impedance to predict the onset of estrus in postpartum anestrus Murrah buffaloes.

The present study was carried out on 24 anestrus postpartum Murrah buffaloes (over 90 days) in different villages of R.S.Pura region of Jammu district and subjected to treatment with CIDR implant + PGF_{2α} (Lutalyse), Hydroxyprogesterone + PGF_{2α} (Lutalyse), Buseralin acetate (Receptal) administration and control as group I, II, III and IV respectively. Group I animals were treatment with CIDR implant on Day 0, followed by administration of PGF_{2α} (Lutalyse) @ 25 mg i.m on the removal of CIDR on Day 7, while group II animals were administered with Hydroxyprogesterone (P-Depot) @ 500 mg intramuscularly on Day 0, 4 and 7th and 25 mg Lutalyse was given on Day 7. In group III, animals were administered only Buseralin acetate (Receptal) @ 20µg intramuscularly on Day 0. Therapeutic efficacies of these regimes were judged on the basis of vaginal mucus impedance (VMI). Vaginal mucus impedance was measured with the help of an electronic probe i.e. "DRAMNISKI" estrus detector (DRAMNISKI electronics in Agriculture, Poland). DRAMNISKI readings were taken on Day 0 of treatment and on the day of estrus. Statistical analysis was carried

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out by using 'Z' test for the difference of proportions (Snedecor and Cochran, 1989).

In the present study, the mean Vaginal mucus impedance was observed to be higher on the day of treatment in all the treatment groups and declined significantly ($P < 0.01$) on the day of estrus (Table 1). Decrease in VMI on the day of estrus are comparable to the observations of Gupta and Purohit (2001) and Alyas (2010) in buffaloes and Meena *et al.* (2003) and Sharma *et al.* (2004) in cows.

Contrary to our studies, higher VMI values were reported by Hulsure and Pargaonkar (1995) and Zuluaga *et al.* (2008). These differences may be due

to change in the design of intravaginal probe used in different studies. Other factors such as depth of probe insertion in vagina, position of probe (dorsal or ventral) in vagina (Foote *et al.*, 1979), pressure against the mucus membrane and pathological conditions of reproductive tract (Leidl and Stolla, 1976) have been shown to influence VMI.

Vaginal electrical resistance (VER) has been fairly studied in cattle, well corroborated with the circulating hormones and satisfactorily used in timed insemination in cattle, sheep and pigs. The ability to predict this parameter could be exploited to determine the stage of estrus cycle and ovulation and hence the optimum insemination time.

Table 1: Effect of various treatments on Vaginal Mucus Impedance (Ohms)

Groups	Day of Treatment	Day of Estrus
Group I	52.50±1.11	32.16±0.87**
Group II	52.50±1.17	29.50±1.19**
Group III	51.83±0.94	30.00±0.91**
Group IV	51.50±0.76	

** Means within a row differ significantly at $P < 0.01$

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