



CHANGES IN GLUCOSE CONCENTRATION IN SAHIWAL COWS REACHING TO ESTRUS

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ABSTRACT

Increasing glucose supply so that both circulating insulin and IGF 1 are increased, therefore, should theoretically cause an earlier resumption of cyclicity by causing the cow to release the more GnRH and have more LH in the system, which is stimulatory to the ovary. The proposed investigation was conducted at Livestock Farm, Adhartal, Jabalpur (M.P.) and Department of Veterinary Physiology & Biochemistry, College of Veterinary Science & A.H., NDVSU, Jabalpur (M.P.). Six Sahiwal cows were selected from the Livestock Farm, Adhartal for the experiment after per rectal examination. Estrus was induced in the animals by using Heatsynch protocol. The blood was collected on day 0, 7, 10, 20 and immediately the mean values of glucose were measured at 0,7,10 and 20 days interval in Sahiwal cows was done by using glucometer. In normal cyclic Sahiwal cows the mean blood glucose level 60.33 ± 2.04 (mg/dl) was lower than the mean blood glucose level 69.83 ± 1.08 (mg/dl) on the day of induced estrus (day 10). Highly significant difference ($P < 0.01$) were found within group.

KEYWORDS: Glucose, cyclicity, GnRH, estrus, Sahiwal cows.

INTRODUCTION

The glucose is the critical nutrient and also is a coordinator of the endocrine mechanisms controlling homeorhesis (Lucy et al., 2014). The endocrine axes controlling the ovary are also affected to potentially influence the return to normal cyclicity. This paper will specifically focus on the glucose concentration in animal reaching to estrus. Increasing glucose supply so that both circulating insulin and IGF 1 are increased, therefore, should theoretically cause an earlier resumption of cyclicity by causing the cow to release the more GnRH and have more LH in the system, which is stimulatory to the ovary.

MATERIALS & METHODS

The proposed investigation was conducted at Livestock Farm, Adhartal, Jabalpur (M.P.) and Department of Veterinary Physiology & Biochemistry, College of Veterinary Science & A.H., NDVSU, Jabalpur (M.P.). Six Sahiwal cows were selected from the Livestock Farm, Adhartal for the experiment after per rectal examination. Estrus was induced in the animals by using Heatsynch protocol comprises of GnRH (10 µg)-PGF₂ (25 mg) - Estradiol (1 mg) was given on day 0, 7 & 8 respectively and A.I. was performed on day 10 (induced estrus). The blood was collected on the same days and immediately glucose estimation was done by using glucometer.

RESULT AND DISCUSSION

The mean values of glucose were measured at 0,7,10 and 20 days interval in Sahiwal cows. In normal cyclic Sahiwal cows the mean blood glucose level 60.33 ± 2.04 (mg/dl) was lower than the mean blood glucose level 69.83 ± 1.08 (mg/dl) on the day of induced estrus (day 10). Highly significant difference ($P < 0.01$) were found within group.

The result can be discussed with the work done by Hafez (1968) who reported that FSH is a glycoprotein which is essential for the biological activity of the hormone. The increase in the glucose level on the day of induced estrus was observed from 60.33 ± 2.04 to 69.83 ± 1.07 mg/dl ($P < 0.01$) within group. The present findings are in agreement to the findings of Shrivastava and Kharche (1989), who reported the mean glucose 66.65 mg/dl during estrus. Mc Cluse (1965) observed that low level of blood glucose in anestrus buffaloes may be an indication of sub-normal energy status. Low energy status affects the follicular development resulting in follicular atresia and anestrus. LeRoy et al. (2008) concluded that glucose and insulin were the most likely molecules to exert an effect on hypothalamic GnRH secretion. Increasing glucose supply so that both circulating insulin and IGF 1 are increased, therefore, should theoretically cause an earlier resumption of cyclicity by causing the cow to release the more GnRH and have more LH in the system, which is stimulatory to the ovary. Lucy (2016) draw the attention on the restoration of ovarian

cyclicity, the process that may be directly affected by glucose.

CONCLUSION

The mean blood glucose level increased significantly ($P < 0.01$) on the day of induced estrus (Day 10) from 60.33 ± 2.04 (mg/dl) to 69.83 ± 1.08 (mg/dl). This may be due to the fact that the glucose and insulin were the most likely molecules to exert an effect on hypothalamic GnRH secretion and may affect the restoration of ovarian cyclicity.

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