

PREVALENCE OF HYPOTHYROIDISM IN CATTLE*

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(Received : October 29, 1986)

Sub-clinical hypothyroid state is generally associated with non-infectious reproductive disorders, namely repeat breeding, subfertility and infertility. Impaired reproductive performance in goats was attributed to subclinical hypothyroidism (Reddy, 1982). Employing protein bound iodine as the marker a survey study was undertaken to assess the thyroid status of cows with cases of non-infectious infertility.

Materials and Methods

Fifty-three cross-bred cows with the history of non-infectious reproductive disorders from Mannuthy, Palghat, Nemmara, Kozhinjampara and Alathur were assessed for thyroid status by employing serum protein bound iodine (PBI) as the marker. These animals were brought to the local veterinary hospitals and they were given all the routine treatments by veterinary officer i/c of the hospital and they were declared as cases of non infectious infertility (repeat breeding) not amenable for conventional treatments. The semen samples of 47 animals with normal reproductive performance from these localities were also analysed.

The data were subjected to Cochran's t-statistic.

Area	Animal number	PBI levels in $\mu\text{g}/100\text{ ml}$
Palghat	1	2.2
	2	1.4
	3	1.2
	4	2.8
	5	2.4
	6	3.2
	7	2.4
	8	3.2
	9	2.8
	10	4.0
	11	2.4
	12	2.4

* Formed part of the M. V. Sc. thesis submitted by the first author to the KAU.

Area	Animal number	PBI levels in $\mu\text{g}/100\text{ ml.}$
Nemmara	1	2.6
	2	2.4
	3	3.2
	4	2.8
	5	3.0
	6	2.0
	7	2.4
	8	2.6
	9	2.4
	10	2.0
	11	3.4
	12	2.4
	13	1.8
	14	1.2
	15	3.0
	16	3.4
	17	2.8
	18	2.4
	19	2.2
	20	3.2
	21	2.2
	22	2.1
	23	2.4
	24	2.6
	25	2.4
Thodupuzha	1	2.4
	2	3.8
	3	2.6
	4	3.6
	5	3.2
	6	3.0
	7	2.6
	8	1.8
Livestock Farm, Mannuthy a) Lactating animals	1	5.2
	2	6.4
	3	6.4
	4	5.2
	5	6.8
	6	6.8

Area	Animal Number	PBI levels in $\mu\text{g}/100\text{ ml}$
	7	5.2
	8	6.8
	9	5.0
	10	6.1
	11	6.8
	12	4.8
	13	5.1
	14	5.0
	15	4.8
	16	5.2
	17	5.2
	18	5.1
	19	4.8
	20	5.2
	21	5.2
	22	5.2
	23	5.0
	24	4.8
	25	5.2
	26	5.0
	27	4.8
b) Dry animals	28	4.1
	29	4.2
	30	4.2
	31	3.1
	32	4.0
	33	4.2
	34	3.6
	35	3.6
	36	4.2
	37	3.8
	38	3.3
	39	4.4
	40	4.2
	41	3.6
	42	3.2
	43	3.6
	44	3.2
	45	4.6
	46	4.6
	47	3.6

The mean PBI value of the animals with the history of infertility was 2.68 $\mu\text{g}/100\text{ ml}$. The means were tested for significance using Cochran's t-statistic and was found that the PBI level was significantly low in cows with non-infectious infertility. The PBI level of the dry cows belonging to the Livestock Farm, Mannuthy was relatively low and it ranged from 3.0 $\mu\text{g}/100\text{ ml}$ to 4.6 $\mu\text{g}/100\text{ml}$ with a mean of 4.7 $\mu\text{g}/100\text{ml}$.

Discussion

The survey studies on the thyroid status of cattle with non-infectious reproductive disorders employing protein bound iodine (PBI) as the marker have therefore indicated that hypothyroidism is prevalent in animals with non-infectious reproductive disorders namely repeat breeding and it could be an important factor which causes non-infectious subfertility and infertility in cattle. The results of the investigation carried out have given proof to the fact that there is significant reduction in the PBI level of repeat breeder animals compared to the control.

The dry animals of the Livestock Farm, Mannuthy had relatively low PBI level as compared with the lactating and pregnant animals. In dry cattle a low PBI was recorded when compared to animals in late pregnancy and lactation. While a significant increase in the PBI level was documented in the later group (Sorensen, 1956; Vzaimosuyaz, 1973) This increase in the PBI level during pregnancy and lactation was attributed to increased metabolic demand. A subnormal thyroid function has been recorded in anoestrous buffaloes as revealed by low plasma PBI level in the blood, and the PBI level in cycling animals manifested a downward trend towards dioestrous stage of oestrous cycle (Dhoble and Gupta, 1980). The results of the present survey study have indicated that the reproductive performance in animals could be impaired by hypothyroidism. This observation is in agreement with the observation made by Reddy (1982) in goats. He also recorded significant reduction in PBI level in experimental hypothyroidism in goats. These observations made have clearly brought to light that hypothyroidism is an important contributing factor for reproductive failures and there is need to look into this factor also while diagnosing and instituting therapy for reproductive disorders.

Summary

Employing serum protein bound iodine as the marker a survey study was conducted to assess the thyroid status of cattle affected with non-infectious reproductive disorders. Hypothyroidism characterized by low PBI level was encountered in all the repeat breeder cows examined. The studies indicated that there is scope for treating repeat breeders

with thyroxine or Iodine supplementation. The dry animals also had relatively low PBI level as compared with the lactating and pregnant animals.

സംഗ്രഹം

റിപ്പീറ്റ് ബ്രീഡർ പശുക്കളുടെ തൈറോയ്ഡിന്റെ പ്രവർത്തനം പഠിച്ചപ്പോൾ എല്ലാ പശുക്കളിലും തൈറോയ്ഡ് ഗ്രന്ഥിയുടെ പ്രവർത്തനം കുറവാണെന്നു കണ്ടു. കറവ വരറിയ പശുക്കളിലും തൈറോയ്ഡ് ഗ്രന്ഥിയുടെ പ്രവർത്തനം കുറവായിരുന്നു. കറക്കുന്ന പശുക്കളിലും, ഗർഭമുള്ള പശുക്കളിലും തൈറോയ്ഡ് ഗ്രന്ഥിയുടെ പ്രവർത്തനം കൂടുതലായി കണ്ടു.

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