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Analysis of insulin-like peptide 3 and testosterone concentrations with selected morphometric attributes in Thamankaduwa white male cattle

De Silva S.T.D.[1], Gunawardena O.B.[2], Pragashan P.[1], Manoharan N.[3], Sukumar V.[3], Viveka K.A.[3], Pagthinathan M.[1], Silva G.L.L.P.[4], Pathirana I.N.[2*]

[1]*Department of Animal Science, Eastern University, Chenkalady, Sri Lanka*
[2]*Department of Animal Science, University of Ruhuna, Matara, Sri Lanka*
[3]*Department of Animal Production and Health, Eastern Province, Sri Lanka*
[4]*Department of Animal Science, University of Peradeniya, Peradeniya, Sri Lanka*

The present study aimed to investigate the serum changes of insulin-like peptide 3 (INSL3) and testosterone in Thamankaduwa White male cattle during development, and to assess the associations among INSL3, testosterone, and selected body parameters, namely, body weight, height at withers, body length, and chest girth of cattle. Morphometric measurements and blood samples (n = 41) were collected under three age categories, i.e. 3 - 6 months (Group I; n = 12), 6 - 12 months (Group II; n = 14), and > 12 months (Group III; n = 15) of bulls in Chenkalady veterinary range, Batticaloa District. Serum INSL3 and testosterone concentrations were measured by using a competitive enzyme immunoassay. Intra- and inter-assay coefficient of variations of INSL3 and testosterone assays were 6.9% (n = 6) and 16.4% (n = 6), and 12.5% (n = 3) and 11.9% (n = 4), respectively. Serum INSL3 and testosterone concentrations ranged between 1.44 - 19.85 ng/mL and 0.003 - 2.81 ng/mL, respectively. The mean INSL3 and testosterone concentrations did not differ ($p > 0.05$) in Group I and II, but were elevated in Group III ($p < 0.05$). There was a strong association ($R^2 = 0.65$; $p < 0.05$) between serum INSL3 and testosterone concentrations. No strong associations were found between the tested hormones and morphometric attributes. In conclusion, the changes in circulating INSL3 and testosterone levels in Thamankaduwa White male cattle showed a similar pattern in the three tested age groups, and strongly correlated with each other.

Keywords: cattle, INSL3, hormone, serum, testosterone

*Corresponding author: indunilvet@agri.ruh.ac.lk