



KEY WORDS

- ✓ AMH
- ✓ Acute phase proteins
- ✓ Cytokines
- ✓ Subclinical endometritis
- ✓ Holstein

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INVESTIGATION OF THE RELATIONSHIPS BETWEEN SERUM ANTI-MÜLLERIAN HORMONE (AMH), UTERINE LAVAGE AND SERUM LACTATE, ACUTE PHASE PROTEINS, PRO/ANTI-INFLAMMATORY CYTOKINE LEVELS AND THE OCCURRENCE OF SUBCLINICAL ENDOMETRITIS IN HOLSTEIN FRIESIAN HEIFERS

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THESIS ABSTRACT

The aim of this study was to determine whether there is an association between serum levels of biochemical parameters, including anti-Müllerian hormone (AMH), lactate, acute phase proteins (APPs), and pro-/anti-inflammatory cytokines, and the development of subclinical endometritis (SKE) in Holstein heifers. For this purpose, blood serum was collected before insemination for AMH analysis, while blood serum samples for the remaining parameters were collected at the 4th and 8th weeks before parturition. The results demonstrated a significant association between pre-insemination serum AMH concentrations and the development of SKE. Furthermore, IL-1 β , IL-10, and haptoglobin concentrations in uterine lavage fluid collected at the 4th week postpartum were significantly associated with the development of SKE.

APPLICATION AREAS OF THE THESIS RESULTS

In this study, serum AMH concentrations were measured before insemination, while serum concentrations of IL-1 β , IL-6, IL-8, IL-10, TNF- α , haptoglobin, and serum amyloid A (SAA) were measured at the 4th and 8th weeks before and after parturition. In addition, uterine lavage concentrations of these parameters were measured at the 4th and 8th weeks postpartum. Serum AMH concentrations were found to be lower in animals with subclinical endometritis. A significant cut-off value (288 pg/mL) was identified. At the 4th week postpartum, uterine lavage concentrations of IL-1 β , IL-10, and haptoglobin were significantly higher in animals with subclinical endometritis.

ACADEMIC ACTIVITIES

- Avcılar, T., Koca, D., Nak, Y., **Şahin, M. E.**, Özyiğit, M. Ö., & Nak, D. (2023). Investigation of relationships between serum lactate, acute phase proteins, pro/anti-inflammatory cytokine levels, and metritis formation in Holstein dairy heifers. *Turkish Journal of Veterinary & Animal Sciences*, 47(3), 176-184.
- Koca, D., Nak, Y., Sendag, S., Nak, D., Avcilar, T., **Şahin, M. E.**, ... & Wehrend, A. (2023). Evaluation of serum anti-Müllerian hormone concentrations following treatment with vitamin D in Holstein Friesian heifers. *Reproduction in Domestic Animals*, 58(12), 1695-1701.
2. Koca, D., Yilmaz, O., **Şahin, M. E.**, & Avcilar, T. (2023). Radiographic pelvimetry in budgerigars with and without egg retention. *Kafkas Üniversitesi Veteriner Fakültesi Dergisi*, 29(5), 497-504.