

Summary of the MSc, Thesis No: **4282** Clinical Biochemistry , Faculty of Veterinary Medicine, Urmia University.

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Title: Investigating procalcitonin levels in dairy cows suffering from clinical and subclinical mastitis as an early diagnostic test.

Summary:

Recent studies in humans and animals have focused on inflammatory biomarkers, biomarkers such as procalcitonin (PCT) may more accurately and efficiently detect inflammation. This cross-sectional study was tested in the year 1400 by census method on 79 dairy cows in industrial cattle farms of Isfahan province. To collect information, particular questionnaire forms were designed and the information necessary about herd conditions was recorded in these forms. The blood, serum, and milk samples were sent to the Clinical Pathology Laboratory of Urmia University Faculty of Veterinary Medicine by maintaining the cold chain. The amounts of procalcitonin, fibrinogen, and ceruloplasmin were measured in serum and milk samples. Also, counting of somatic cells, CMT, and culture of milk samples were done in order to evaluate the microbial population in cows suffering from clinical and subclinical mastitis. The results of measuring biochemical parameters were recorded in the relevant tables in these questionnaire forms. Data analysis using SPSS software was used in descriptive statistics (central and dispersion indices) in analytical statistics Chi-Square, T-Test, ANOVA, and ROC. These results showed that the parameters of SCC, procalcitonin, fibrinogen, ceruloplasmin, milk fibrinogen, and milk ceruloplasmin increase significantly in subclinical and clinical mastitis groups. Also, according to the results, one of the bacterial factors that increased these parameters was *E.coli* bacteria. And in this way, the results of the ROC curve regarding blood serum indicators show that the changes of blood serum procalcitonin in the first priority and fibrinogen index is the second priority, and finally, ceruloplasmin in all cows with clinical mastitis that It has microbial agents in milk, it is increased and it shows the high sensitivity and specificity of this index with clinical mastitis caused by the presence of microbial agents in milk. And in the continuation of this study, the results of the ROC curve for other indicators show that milk ceruloplasmin is increased in milk samples obtained from cows suffering from clinical mastitis that have microbial agents in milk, indicating sensitivity and It has the high character of this index in milk. The index of milk fibrinogen and SCC is in the second and third priority, and finally, CMT, which has the lowest sensitivity and specificity for clinical mastitis caused by the presence of bacteria in milk. Therefore, it can be concluded that procalcitonin can be used as a biomarker for the early diagnosis of mastitis.

Key words: Procalcitonin, clinical mastitis, subclinical mastitis, bovine