Plasma pregnancy specific protein B (PSPB) in days 25, 26 and 28 in two beef cattle breeds

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Extensive beef cattle farming systems are progressively implementing new methods to make more technical the production cycle. Detection of pregnancy specific protein B (PSPB) could be an accurate and early pregnancy diagnosis to reduce the calving interval. The aim of the study was to analyse the expression of cytokine genes (interleukin 8 – IL8, interleukin 18 – IL18, interleukin1β – IL1-β, C-X-C motif ligand 5 – CXCL5, Tumour Necrosis Factor – TNFa and C-C Motif Chemokine Ligand – CCL2) in the mammary gland parenchyma infected with coagulase-positive or negative staphylococci. The 51 quarter samples were obtained from 40 Polish Holstein-Friesian cows of Black-and-White variety. Three groups of samples were distinguished: infected with CoPS (n=25), infected with CoNS (n=13), and non-infected ones (n=13). The gene expression was analysed using qPCR techniques (LightCycler480, Roche). The GAPDH was used as a reference. There were no differences in IL1-β, TNFα and CCL2 expressions. The differences in expression of IL8 and CXCL5 were stated. However, the differences were observed only between CoPS vs non-infected (P<0.01) and CoNS vs non-infected (P<0.05) samples. There was no difference between CoNS and CoPS infected samples. Moreover, the difference in IL18 expression between non-infected and CoPS infected samples (P<0.05) was noted. The expression of all three genes was the lowest in non-infected samples. The studied interleukins (IL8, IL18) are pro-inflammatory cytokines and the level of their expression increase when the inflammatory state occurs. Moreover, CXCL5 is a chemokine that is also released during the onset of inflammation in the organism. The coagulase-negative staphylococci are considered as environmental bacteria but our results indicate that both types of staphylococci cause the inflammation in the mammary gland. The study was financed by a grant from the National Scientific Center, Poland, No. 2015/17/B/NZ9/01561.

Cytokine gene expression in the mammary gland parenchyma of dairy cows infected with staphylococci

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Coagulase-positive (CoPS) and coagulase-negative staphylococci (CoNS) are common cause of the bovine mastitis. Cytokines are glycoproteins participating in both anti-inflammatory and pro-inflammatory processes. The aim of the study was to analyse the expression of cytokine genes (interleukin 8 – IL8, interleukin 18 – IL18, interleukin1β – IL1-β, C-X-C motif ligand 5 – CXCL5, Tumour Necrosis Factor – TNFa and C-C Motif Chemokine Ligand – CCL2) in the mammary gland parenchyma infected with coagulase-positive or negative staphylococci. The 51 quarter samples were obtained from 40 Polish Holstein-Friesian cows of Black-and-White variety. Three groups of samples were distinguished: infected with CoPS (n=25), infected with CoNS (n=13), and non-infected ones (n=13). The gene expression was analysed using qPCR techniques (LightCycler480, Roche). The GAPDH was used as a reference. There were no differences in IL1-β, TNFα and CCL2 expressions. The differences in expression of IL8 and CXCL5 were stated. However, the differences were observed only between CoPS vs non-infected (P<0.01) and CoNS vs non-infected (P<0.05) samples. There was no difference between CoNS and CoPS infected samples. Moreover, the difference in IL18 expression between non-infected and CoPS infected samples (P<0.05) was noted. The expression of all three genes was the lowest in non-infected samples. The studied interleukins (IL8, IL18) are pro-inflammatory cytokines and the level of their expression increase when the inflammatory state occurs. Moreover, CXCL5 is a chemokine that is also released during the onset of inflammation in the organism. The coagulase-negative staphylococci are considered as environmental bacteria but our results indicate that both types of staphylococci cause the inflammation in the mammary gland. The study was financed by a grant from the National Scientific Center, Poland, No. 2015/17/B/NZ9/01561.