Rapid and widely disseminated acute phase protein response after experimental bacterial infection of pigs - DTU Orbit (01/01/2019)

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The acute phase protein response is a well-described generalized early host response to tissue injury, inflammation and infection, observed as pronounced changes in the concentrations of a number of circulating serum proteins. The biological function of this response and its interplay with other parts of innate host defence reactions remain somewhat elusive. In order to gain new insight into this early host defence response in the context of bacterial infection we studied gene expression changes in peripheral lymphoid tissues as compared to hepatic expression changes, 14-18 h after lung infection in pigs. The lung infection was established with the pig specific respiratory pathogen Actinobacillus pleuropneumoniae. Quantitative real-time PCR based expression analysis were performed on samples from liver, tracheobronchial lymph node, tonsils, spleen and on blood leukocytes, supplemented with measurements of interleukin-6 and selected acute phase proteins in serum. C-reactive protein and serum amyloid A were clearly induced 14-18 h after infection. Extrahepatic expression of acute phase proteins was found to be dramatically altered as a result of the lung infection with an extrahepatic acute phase protein response occurring concomitantly with the hepatic response. This suggests that the acute phase protein response is a more disseminated systemic response than previously thought. The current study provides to our knowledge the first example of porcine extrahepatic expression and regulation of C-reactive protein, haptoglobin, fibrinogen, pig major acute phase protein, and transferrin in peripheral lymphoid tissues.

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