

Acute phase proteins in dogs and cats: current knowledge and future perspectives.

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The acute phase response is a nonspecific inflammatory reaction of the host that occurs shortly after any tissue injury. The response includes changes in the concentration of plasma proteins called acute phase proteins (APPs), some of which decrease in concentration (negative APPs), such as albumin or transferrin, and others of which increase in concentration (positive APPs), such as C-reactive protein, serum amyloid A, haptoglobin, alpha-1-acid glycoprotein, and ceruloplasmin. Most positive APPs are glycoproteins synthesized mainly by hepatocytes upon stimulation by proinflammatory cytokines and released into the bloodstream. The acute phase response and clinical application of monitoring APPs in dogs and cats are reviewed in this article, including biochemical characteristics, assays developed for each individual APP, and preanalytic and analytic factors influencing APP results that should be taken into account for proper and adequate clinical interpretation. In addition, the diagnostic use of APPs and their possible application in monitoring treatment, which can be considered one of the most interesting and promising practical applications of these proteins, will be discussed. Finally, challenges and future developments of APPs in dogs and cats will be considered, because it is expected that new and cheaper automated assays for determination of the main APPs in small animals will contribute to a wider use of these proteins as biomarkers of infection and inflammatory lesions.

Vet Clin Pathol. 2005 Jun; 34(2):85-99.