Detecting Splenic Vascular Tumors

Splenic hemangiosarcomas (HSAs) are common vascular tumors in dogs. Prognosis for HSAs are poor, so differentiation from other benign splenic masses would be helpful. Vascular endothelial growth factor (VEGF) might play a role in HSA tumor growth. VEGF is an endothelial cell-specific mitogen that regulates angiogenesis and is stimulated by hypoxia, inflammatory cytokines, growth factors, hormones, and oncogenic mutations. It has been proposed to be a diagnostic marker of malignancy.

This study investigated whether serum VEGF could differentiate splenic HSAs from nonmalignant splenic hematomas using a commercial ELISA. Serum samples from 7 dogs with HSA, 8 with splenic hematomas, and 23 healthy control dogs were analyzed. Serum VEGF levels were higher in dogs with splenic masses compared to healthy dogs, but did not differ significantly between dogs with HSAs and those with hematomas. This serum ELISA measured VEGF 164 isoform, which may not be the dominant angiogenic factor in HSAs and hematomas. Further studies are necessary to investigate possible roles of other angiogenic factors, including other VEGF isoforms. VEGF has potential clinical utility as a diagnostic marker for dogs with splenic lesions; however, it may not be useful for distinguishing between different types.

Commentary

In the quest to find early markers of neoplasia for diagnosis, and/or therapeutic targets, VEGF has been vastly studied in patients with cancer, including HSA. Results are controversial, and currently this test is not helpful in distinguishing neoplasia from benign conditions. Surgical excision and histopathology remains the gold standard for diagnosis and treatment. Early diagnosis may be achievable by regular screening of geriatric patients with bloodwork and imaging; however, the benefit of early diagnosis is unknown in patients with HSA, as our therapeutic arsenal for this disease is limited, and the cost of regular screening is high.—Cecilia Robat, DVM, DACVIM (Oncology)

Plants to Treat Arthritis

Rheumatoid arthritis (RA) is an autoimmune disease that causes chronic inflammation of the synovial membranes and proliferation that leads to bone destruction and joint malformation. Biologic agents (eg, tumor necrosis factor inhibitors, interleukin [IL]-1 antagonists, NSAIDs) are clinically effective in RA patients but have limited efficacy. Nuclear factor (NF)-κB is highly activated in the pathogenesis of RA and may enhance recruitment of inflammatory cells and production of proinflammatory mediators. (NF)-κB also controls the expression of gene products that influence inflammation, immunity, cell proliferation, and apoptosis. Baicalin is a flavonoid found in the dry root of the medicinal plant Scutellaria baicalensis Georgi. It is used in Asia for the treatment of brain, hepatic, and inflammatory diseases. Evidence has suggested that baicalin has antiinflammatory, antioxidant, antipoptotic, and immunoregulatory properties and may have a role in antiinflammation and immune regulation. This study investigated the effect of baicalin in a collagen-induced arthritis (CIA) model of human RA in rats.

Rats with confirmed CIA were divided into groups; each received intraperitoneal injections of 50, 100, or 200 mg/kg baicalin q24h, 1 mg/kg methotrexate q72h, or physiological saline for 30 days. Significant suppression of collagen-induced joint inflammation injury was noted in a dose-dependent manner in those rats receiving baicalin. This improvement was assessed by observation of decreased redness and swelling of the ankle, decreased functional impairment, and decreased secretion of key cytokines in pathologic synovia.

Commentary

Medicinal plants used in the herbal medicine of various cultures have long been controversial in modern medicine because they lack substantial evidence of efficacy in the literature. Studies like this help support our understanding of a molecular pathway for efficacy, which is important in the overall understanding of ancient therapies and for creation of buy-in for skeptical practitioners. Further studies to evaluate the clinical effectiveness of compounds such as baicalin in other animals are needed, especially comparing the effectiveness of the whole herb vs its molecular constituents, and when using alternate routes of administration.—Heather Troyer, DVM, DABVP, CVA

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